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# The CALS Test Network MIL-D-28000 Class II Reference Drawing Packet Revision C

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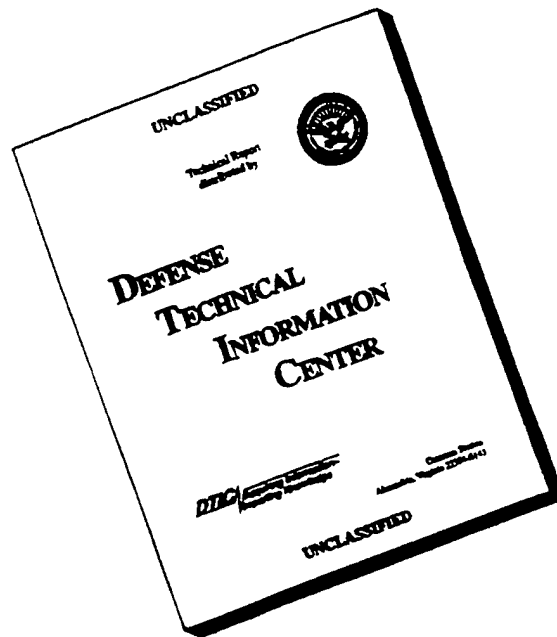


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Air Force Logistics Command  
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# The CALS Test Network MIL-D-28000 Class II Reference Drawing Packet Revision C

January 27, 1989

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Prepared by  
Lawrence Livermore  
National Laboratory

LLNL Contact  
Jill Farrell  
(415) 423-6348

AFLC Contact  
Mel Lammers  
(513) 257-3085

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AITI Project



Lawrence Livermore National Laboratory

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## Preface

This CALS Test Network MIL-D-28000 Class II Reference Drawing Packet is a document which will have periodic updates. This will occur as the reference drawings and their associated procedures, scripts, and files are corrected for oversights and/or are updated to new versions of the standards.

I acknowledge the following people for their technical assistance: members of the IGES/PDES Organization, in particular of the IGES Test Case Development Committee; those in the LLNL Plant Engineering Central CADD Facility, in particular Kenneth Sivori; and all the CTN team members.

Please use the information contained in this packet at your own risk. Send recommendations for change or comments about the content to:

Jill Farrell  
CALS Test Network, IGES Lead Analyst  
Lawrence Livermore National Laboratory  
P.O. Box 808 L-542  
Livermore, CA 94550

## Abstract

This CALS Test Network MIL-D-28000 Class II Reference Drawing Packet contains the information needed to conduct tests of the engineering drawing subset, Class II, of the military specification MIL-D-28000 using IGES processors. The material is intended to demonstrate industry's and government's use of MIL-D-28000 in accordance with the CALS initiative. The CALS Test Network (CTN) is the organization tasked with demonstrating this digital data interchange among industry and government and will use this packet during CTN structured testing. The results derived from this testing will allow the CTN to suggest modifications to drafting techniques, CAD vendors' IGES processors, the IGES specification, and most importantly, the MIL-D-28000 military specification.

## The CALS Test Network MIL-D-28000 Class II Reference Drawing Packet

### 1.0 Introduction

The CALS Test Network (CTN) is a distributed Department of Defense (DOD) and industry consortium within the Computer-Aided Acquisition and Logistic Support (CALS) Program tasked with demonstrating and testing the interchange of digital technical information using the CALS standards in user applications.

The N-entity and the L-bracket reference drawings described herein will be used by the CALS Test Network (CTN) during structured end-to-end transfer testing of IGES data. IGES is the Initial Graphics Exchange Specification used for interchanging computer aided design (CAD) data between dissimilar CAD systems. Specifically, these reference drawings will demonstrate the use of the IGES entities identified in the engineering drawing subset, Class II, of the military specification, MIL-D-28000. In addition to demonstrating the use of this military specification and subset, these drawings will also allow the CTN to demonstrate the use of MIL-D-28000's parent document, MIL-STD-1840A. MIL-STD-1840A is a CALS standard which standardizes the delivery "envelope" used by organizations exchanging digital forms of technical information.

It is important to note that many CAD systems presently support only part of the military specification/subset, MIL-D-28000 Class II, because of the large number of entities the subset identifies. This means that any system executing this reference material will not likely achieve 100 percent perfect results. There is no reason to be alarmed. The goal is to determine which entities are presently processed and to work toward the best transfers possible.

### 2.0 Content of the Reference Drawing Packet

The CTN MIL-D-28000 Class II Reference Drawing Packet you are currently reading contains a set of reference material. This packet contains the pieces of information needed to execute a test using a CAD vendor's IGES processors. It contains:

1. Procedures to follow to conduct a pre-processor test; pre-processing is the translation from a CAD system to an IGES file.



2. Generation scripts (sets of instructions) to follow to create the N-entity and L-bracket drawings on any CAD system.
3. Plots to show what the N-entity and L-bracket drawings should look like upon completing the generation scripts.
4. Procedures to follow to conduct a post-processor test; post-processing is the translation from an IGES file to a CAD system.
5. The IGES files on a 9-track tape in MIL-STD-1840A format of both the N-entity and L-bracket reference drawings to post-process into the CAD system.
6. Evaluation scripts (sets of questions) to complete after the N-entity and L-bracket drawings have appeared on the CAD screen after post-processing.
7. A paper printout of the IGES files for both the N-entity and L-bracket drawings with every entity identified by number, form, and, description; these may be useful in pinpointing processing errors.
8. Entity listing and counts for both the N-entity and L-bracket drawings.
9. Hardware and software descriptions of the CTN IGES Test Platform.

The above-mentioned pieces of information are contained in the attachments labeled A through M which follow this general introduction.

### 3.0 Content and Creation of the Reference Material

#### 3.1 The N-entity Drawing

The N-entity drawing is comprised of all the geometric and annotation IGES entities (entity numbers 100 through 230) identified in the MIL-D-28000 Class II subset. The drawing is organized such that the entities reside individually by entity and form number within one box of a grid. This grid box is labeled to show which entity it should contain. All entities are model mode entities and some are three-dimensional. The drawing is C-sized.

#### 3.2 The L-bracket Drawing

The L-bracket drawing incorporates all of the structure entities (IGES entity numbers 304-410) specified in the MIL-D-28000 Class II subset. The l-bracket is stored as a three-dimensional model and is represented on a C-sized drawing by four views. Draw mode entities detail and dimension the l-bracket's views. The drawing is meant to resemble a workable engineering drawing.

### 3.3 Development of the IGES Files

The N-entity and L-bracket drawings were drafted on a CAD system, then pre-processed into IGES files. Because the pre-processed IGES files did not completely conform to IGES Version 4.0 and MIL-D-28000, did not include all desired Class II entities, and included unwanted volunteer entities; the files were hand edited. During this hand editing, the criteria discussed in the "Guide to Developing IGES Test Cases" written by the IGES Test Case Subcommittee of the National IGES/PDES Committee was adhered to where ever possible. This hand editing produced IGES files that incorporate all MIL-D-28000 Class II entities and pass several IGES analyzers with no accountable errors. The two analyzers referred to are the IGES Model Testing System and the IGES Data Analysis Company Parser/Verify and View software package.

The completed IGES files were then copied to a 9-track tape in accordance with MIL-STD-1840A. 1840A declaration files accompany the IGES files on the 9-track tape.

### 3.4 The Scripts

The reference drawing packet contains two different kinds of scripts. The generation scripts describe how to create the reference drawings on a CAD system during the pre-processor test and are designed to be generic enough to allow drawing generation on any CAD system. The evaluation scripts describe how to evaluate the CAD model that appears during a post-processor test, and they ask questions that try to address DOD's present requirements for an engineering drawing digital transfer. CTN's understanding is that, presently, DOD requires only accurate pictures of the engineering drawings.

### 3.5 The Procedures

The CTN's procedures for testing both the pre- and post-processors follow the testing procedures proposed by the National IGES/PDES Testing Subcommittee. Other procedures were derived from available hardware and software resources and past experience.

### 4.0 Conclusion

By following the procedures described in this CTN MIL-D-28000 Class II Reference Drawing Packet and by referring to the scripts, plots, and data lists also contained within, one can examine engineering data digital transfers using IGES and MIL-D-28000. This packet does not validate a vendor's conformance to MIL-D-28000 Class II, but instead allows the CALS Test Network to demonstrate

industry/government's use of the MIL-D-28000 specification  
in accordance with the CALS initiative.

Attachment A

Procedures for Executing the CTN Reference Drawing  
IGES Pre-processor Test

## Procedures for Executing the CTN Reference Drawing IGES Pre-processor Test

---

1. Follow the script to generate both the N-entity and the L-bracket reference drawings on your native CAD system to the system's best abilities. Record any problems encountered or deviations taken while following the generic script on the attached incident report sheets. Use additional sheets if necessary.

Try to create the entities on the CAD system so that the desired IGES entity is pre-processing into the IGES file. The scripts specify which entities are the desired entities. To accomplish this, we recommend that these scripts be followed in the presence of both a knowledgeable CAD operator and an experienced IGES person, both people preferably supplied by the CAD vendor. This will insure the best transfer possible with a particular CAD vendor's software.

Furthermore, although the CAD system may not support the "desired" IGES entity, try to match the appearance of the drawings using other entities allowed in MIL-D-28000 Class II.

2. Pre-process the CAD drawings into the IGES formats using any available switches to create MIL-D-28000 Class II files. Place the required MIL-D-28000 Class II Start Section information into the files. Name the IGES files the same names as the CAD parts. Record any errors the system reports.
3. Prepare a MIL-STD-1840A compliant 9-track tape containing both the N-entity and L-bracket IGES files and their corresponding declaration files. Be sure to include the proper 1840A header information to the IGES files and copy all files to the tape with the appropriate 1840A format. Record any difficulties experienced.
4. If you are conducting a self-test, collect the tape and all incident reports from steps 1, 2, and 3 for evaluation. If you pre-arranged a formal CTN test and obtained CTN approval, send the tape and all incident reports from steps 1, 2, and 3 to the CALS Test Network.
5. Evaluate the data. The CALS Test Network will and anyone conducting a self-test should:
  - a. Check the tape for proper MIL-STD-1840A formats.

- b. Check the tape for appropriate MIL-STD-1840A declaration information.
- c. Check the IGES file for appropriate MIL-STD-1840A header information.
- d. Examine the IGES file visually for format and content.
- e. Parse and verify the IGES file using various IGES analyzers to check for IGES syntax errors and illegal MIL-D-28000 Class II constructs.
- f. View the graphics the IGES file generated with IGES viewing packages.
- g. Pinpoint any file, IGES processor, IGES standard, and/or military standard inefficiencies using the above software and personal knowledge.
- h. Bring the findings to the appropriate parties for correction (either vendor, CAD system operator, IGES Committee, or the military standard's sponsor).
- i. On CTN-arranged tests, the CTN will publicly publish results of findings.

Attachment B

N-entity Generation Script

## N-entity Generation Script

---

Part) Create a part named "NENTITY".

Drawing) If the CAD system allows for a separate drawing file within the part, create a C-sized drawing named "NENTITY" with the drawing origin in the lower left-hand corner.

INSERT ALL ENTITIES WHILE WORKING IN THE TOP VIEW CONSTRUCTION PLANE. THIS CONSTRUCTION PLANE OR REQUIRED COORDINATE ORIENTATION IS SHOWN (LABEL A) ON THE A-SIZED, N-ENTITY PLOT ATTACHED TO THIS SCRIPT. ALL MODEL COORDINATES (X,Y,Z) REFERRED TO IN THIS SCRIPT ARE BASED ON THIS COORDINATE ORIENTATION. NAME THIS VIEW "A".

CREATE THE FOLLOWING ENTITIES IN THE DEFAULT COLOR AND DEFAULT LEVEL OF THE CAD SYSTEM. INSERT ALL ENTITIES IN MODEL MODE.

IN EVERY INSTANCE, TRY TO CREATE THE ENTITY ON THE CAD SYSTEM SUCH THAT UPON PRE-PROCESSING THE PART INTO IGES, THE DESIRED ENTITY AND FORM NUMBER APPEAR IN THE IGES FILE. THE DESIRED ENTITY AND FORM NUMBERS ARE THOSE NUMBERS ALONG THE LEFT-HAND MARGIN PRECEDING THE CREATION OR INSERTION COMMAND.

Grid lines)

Insert the following grid lines:

a)	from (1,16,0)	to (1,0.01,0)
b)	(3,16,0)	(3,0.01,0)
c)	(5,16,0)	(5,0.01,0)
d)	(7,16,0)	(7,0.01,0)
e)	(9,16,0)	(9,0.01,0)
f)	(11,16,0)	(11,0.01,0)
g)	(13,16,0)	(13,0.01,0)
h)	(15,16,0)	(15,0.01,0)
i)	(17,16,0)	(17,0.01,0)
j)	(19,16,0)	(19,0.01,0)
k)	(21,16,0)	(21,0.01,0)
l)	(21,16,0)	(1,16,0)
m)	(1,14,0)	(21,14,0)
n)	(1,12,0)	(21,12,0)
o)	(1,10,0)	(21,10,0)
p)	(1,8,0)	(21,8,0)
q)	(1,6,0)	(21,6,0)
r)	(1,4,0)	(21,4,0)
s)	(1,2,0)	(21,2,0)
t)	(1,0.01,0)	(21,0.01,0)





- 100) Create a circular arc centered at (2,15,0) with a radius of 0.5 inches and traced out counterclockwise from 270 to 180 degrees.
- 102) a) Insert a point at (3.5,15,0).  
 b) Insert a line from (3.5,15,0) to (3.5,15.5,0).  
 c) Insert an arc centered at (3.5,15,0) with a radius of 0.5 inches and traced out counterclockwise from 0 to 90 degrees.  
 d) Insert a cubic parametric spline through the points (4,15,0), (4.5,14.75,0), and (4.75,14.75,0).  
 e) Group the point, line, arc, and spline together to form one entity. Use the composite curve entity (IGES entity 102) if your system supports it.
- 104 F0) Insert a conic with the general equation:  

$$4x^2 + 0xy + y^2 - 48x - 30y + 368.75 = 0$$
 If the CAD system will not accept a general equation, this conic is an ellipse centered at (6,15,0) with a major axis of 1.0 inches and a minor axis of 0.5 inches. The major axis parallels the vertical axis.
- 104 F1) Insert an ellipse centered at (8,15,0) with a major axis of 1.0 inches and a minor of 0.5 inches. Position the ellipse so that the major axis parallels the horizontal axis.  
 If needed, the general equation of this conic is:  

$$x^2 + 0xy + 4y^2 - 16x - 120y + 963.75 = 0$$
- 104 F2) Insert a horizontal hyperbola centered at (10.25,15,0) such that only the left side is visible and that it extends 0.25 inches toward the negative x-direction. Refer to the N-entity plot for a pictorial description.  
 If needed, the general equation of this conic is:  

$$x^2 + 0xy - 4y^2 - 20.5x + 120y - 795 = 0$$
 For  $9.75 \leq x \leq 10$
- 104 F3) Insert a vertical parabola with a vertex of (12,15,0) and the focus point at (12,15.25,0). Extend the parabola into the positive y-direction to make it 0.25 inches tall. Refer to the plot for a pictorial description.  
 If needed, the general equation of this conic is:  

$$x^2 + 0xy + 0y^2 - 24x - y + 159 = 0$$
 For  $15 \leq y \leq 15.25$

- 106 F11) a) Insert a circular arc centered at (14,14.75,0) with a radius of 0.5 and traced out counterclockwise from 0 to 180 degrees.  
b) Transform the circular arc into a "linear planar curve" entity (IGES entity 106 Form 11) - a curved string of many short straight segments.
- 106 F12) Insert a three-segmented string as one entity through the 3D points:  
(15.5,14.5,0)  
(15.75,15,1)  
(16,14.75,2)  
(16.5,15.5,3)
- 106 F20) a) Insert a point at (18,15.25,0) and at (18,14.75,0).  
b) Insert a centerline between these two points to create the "centerline through points" entity (106 Form 20) in the IGES file if possible. This centerline should extend between approximately (18,15.4,0) and (18,14.6,0).
- 106 F21) a) Insert a circle centered at (20,15,0) with a 0.5 inch radius.  
b) Create a crosshair through this circle using the "centerline through circle center" entity (106 Form 21) if possible. This is a single entity composed of both a vertical and a horizontal centerline. These centerlines should extend between approximately (20.6,15,0) to (19.4,15,0) and (20,15.6,0) to (20,14.4,0).
- 106 F31) a) Insert a square as a single, four-sided entity between the points:  
(1.5,13.5,0)  
(2.5,13.5,0)  
(2.5,12.5,0)  
(1.5,12.5,0)  
b) Create solid crosshatching (106 Form 31 - parallel line segments) inside this square. This pattern usually represents cast or malleable iron or general use for all materials. Insert the crosshatching with a spacing of 0.2 inches and at an angle of 45 degrees.
- 106 F32) a) Insert eight lines between the points:  
(3.5,13.5,0) and (4.5,13.5,0)  
(4.5,13.5,0) (4.5,12.5,0)  
(4.5,12.5,0) (3.5,12.5,0)  
(3.5,12.5,0) (3.5,13.5,0)

(3.75,13.25,0)	(4.25,13.25,0)
(4.25,13.25,0)	(4.25,12.75,0)
(4.25,12.75,0)	(3.75,12.75,0)
(3.75,12.75,0)	(3.75,13.25,0)

to create a square shape within a square.

- b) Insert crosshatching (106 Form 32 - parallel line segments in pairs with a gap between pairs) between the outer square and the inner square. This pattern usually represents steel. Insert the crosshatching with a spacing of 0.177 inches and at an angle of 45 degrees. Refer to the N-entity plot for further clarification of the pattern definition.

- 106 F33) a) Insert four lines from:

(5.5,13.5,0)	to (6.5,13.5,0)
(6.5,13.5,0)	(6.5,12.5,0)
(6.5,12.5,0)	(5.5,12.5,0)
(5.5,12.5,0)	(5.5,13.5,0)

- b) Insert crosshatching (106 Form 33 - an alternating pattern of a solid line and a set of collinear dash segments) inside the square that the above lines form. This pattern usually represents bronze, brass, copper, and compositions. Insert the crosshatching with a spacing of 0.167 inches and at an angle of 45 degrees. Again, refer to the plot for clarification.

- 106 F34) a) Insert two lines from (7.5,12.5,0) to (8.5,12.5,0) and (8.5,12.5,0) to (8.5,13.5,0).

- b) Insert a circular arc centered at (8.5,12.5,0), with a radius of 1 inch, and arced between (8.5,13.5,0) and (7.5,12.5,0) counterclockwise.

- c) Insert crosshatching (106 Form 34 - parallel lines in quadruples with a gap between groups) inside the two lines and the arc. This pattern usually represents rubber, plastic, and electrical insulation. Insert the crosshatching with a spacing of 0.1 inches and at an angle of 45 degrees.

- 106 F35) a) Insert four lines from:

(9.5,13.5,0)	to (10.5,13.5,0)
(10.5,13.5,0)	(10.5,12.5,0)
(10.5,12.5,0)	(9.5,12.5,0)
(9.5,12.5,0)	(9.5,13.5,0)

- b) Insert crosshatching (106 Form 35 - triples of parallel lines consisting of two solid lines and a set of collinear dash segments between them with a gap between triples) inside the four lines. This pattern usually represents titanium and refractory material. Insert the crosshatching with a spacing of 0.2 inches and at an angle of 45 degrees.
- 106 F36) a) Insert four lines from:
- (12,12.5,0) to (11.5,12.5,0).  
 (11.5,12.5,0) (11.5,13.5,0)  
 (11.5,13.5,0) (12.5,13.5,0)  
 (12.5,13.5,0) (12.5,13,0)
- b) Insert a circular arc centered at (12.5,12.5,0), with a radius of 0.5 inches, and arced between (12.5,13,0) and (12,12.5,0) counterclockwise.
- c) Insert crosshatching (106 Form 36 - parallel sets of collinear dash segments) inside these two lines and the arc. This pattern usually represents marble, slate, glass, porcelain. Insert the crosshatching with a spacing of 0.167 inches and at an angle of 45 degrees.
- 106 F37) a) Insert four lines from:
- (13.5,13.5,0) to (14.5,13.5,0)  
 (14.5,13.5,0) (14.5,12.5,0)  
 (14.5,12.5,0) (13.5,12.5,0)  
 (13.5,12.5,0) (13.5,13.5,0)
- b) Insert crosshatching (106 Form 37 - two perpendicular sets of parallel lines) inside the four lines. This pattern usually represents white metal, zinc, lead, babbitt, and alloys. Insert the crosshatching with a spacing of 0.177 inches and at an angle of 45 degrees.
- 106 F38) a) Insert four lines from:
- (15.5,13,0) to (15.5,12.5,0)  
 (15.5,12.5,0) (16.5,12.5,0)  
 (16.5,12.5,0) (16.5,13.5,0)  
 (16.5,13.5,0) (16,13.5,0).
- b) Insert a cubic parametric spline through the three points:
- (15.5,13,0)  
 (15.7,13.1,0)  
 (16,13.5,0).

- c) Insert crosshatching (106 Form 38 - two perpendicular sets of lines with the principal set solid from edge to edge and the second set consisting of collinear dash segments alternating on the solid lines) inside these four lines and the spline. This pattern usually represents magnesium, aluminum, and aluminum alloys. Insert the crosshatching with a spacing of 0.167 inches and at an angle of 45 degrees.
- 106 F40)
- a) Insert a point at (17.5,13.5,0) and at (17.5,12.5,0).
  - b) Insert the letter "A" at (17.75,13.25,0) with a bottom-left-justified text origin. The text height should be 0.5 and width 0.5 inches. Use the standard block (or default) text font.
  - c) Create a linear dimension between the two points. Center the "1.000" text around (18.5,13,0) and use a text height of 0.125 inches. Use the default arrowhead sizes. The upper witness line leading from the point to the arrowhead should blank out while over the letter to allow clear reading of the text "A".
- 106 F63)
- Create a rectangle or a "simple closed area" entity (106 Form 63) consisting of one entity between the points:
- (19.5,12.75,0)
  - (19.5,13.5,0)
  - (20.5,13.5,0)
  - (20.5,12.75,0)
- 108 F0)
- a) Insert two lines from:
    - (1.5,11,0) to (2,11.75,0)
    - (2.5,11,0) to (2,11.75,0)
  - b) Create a new view named "B" with the clipping planes (IGES entities 108 Form 0) at:
    - x = 1
    - x = 3
    - y = 10
    - y = 11.5
- 108 F1)
- Create a bounded plane (108 Form 1) at:
- x = 3.5
  - x = 4.5
  - y = 10.5
  - y = 11.5

This should create a rectangle or "bounded curve" between the points:

(3.5,10.5,0)  
(4.5,10.5,0)  
(4.5,11.5,0)  
(3.5,11.5,0)

- 110) Create a line from (6,11.5,0) to (6,10.5,0).
- 112) Create a cubic parametric spline curve through the points:
- (7.5,11.5,0)  
(8.25,11.25,0)  
(8.5,11,0)  
(8.5,10.75,0)  
(8.25,10.5,0)  
(8,10.5,0)  
(7.75,10.75,0)  
(7.75,11,0)  
(8.5,11.5,0).
- 114) a) Insert two cubic parametric spline curves through:
- (9.5,11.5,1)  
(9.75,11.75,1)  
(10.25,11.5,1)  
(10.5,11.5,1)
- and
- (9.5,10.75,0)  
(9.75,11,0)  
(10.25,10.75,0)  
(10.5,10.75,0).
- b) Create a cubic parametric spline surface (IGES entity 114) between these two splines. Mesh the surface to make 5 mesh spacings in both the horizontal and vertical directions.
- 116) Insert a point at (12,11,0).
- 118 F0) a) Insert a line from (13.5,11.5,0) to (13.5,10.5,0).
- b) Insert a circular arc through the points (14.5,11.5,0), (14.25,11,0), and (14.5,10.5,0).
- c) Create a ruled surface with equal relative arc lengths (IGES entity 118 Form 0). Mesh the surface to make 5 mesh spacings in the horizontal direction.

- 118 F1) a) Insert a line from (15.5,11.5,0) to (15.5,10.5,0).  
 b) Insert a circular arc through the points (16.5,11.5,0), (16.25,11,0), and (16.5,10.5,0).  
 c) Create a ruled surface with equal relative parametric values (IGES entity 118 Form 1). Mesh the surface to make 5 mesh spacings in the horizontal direction.
- 120) a) Insert a line from (18,11.75,0) to (18,10.5,0).  
 b) Insert a circular arc through the points (18.5,11.5,0), (18.25,11.125,0), and (18.5,10.75,0).  
 c) Generate a surface of revolution with the circular arc as the generatrix and the line as the axis of revolution. Mesh the surface to make 10 mesh spacings in the vertical direction.
- 122) a) Insert a line from (19.75,10.75,0) to (20,11,-1).  
 b) Insert a circular arc through the points (19.75,11,0), (20,11.25,0), and (20.25,11,0).  
 c) Generate a tabulated cylinder 1 inch into the negative z-direction following the vector path of the line. The circular arc is the directrix and the line is the generatrix. Mesh the partial cylinder to make 5 mesh spacings parallel to the length of the cylinder.
- 124 F0) a) Create a subfigure named "ARROW" of an arrow shaped figure composed of four lines from:  
     (0,0.5,0) to (0,-0.5,0)  
     (0,-0.5,0) (0.3,0,0)  
     (0,-0.5,0) (-0.3,0,0)  
     (-0.3,0,0) (0.3,0,0).  
     Note that the arrow points downward.
- b) Insert the subfigure into the NENTITY drawing at the model location (2,9,0) so that the arrowhead points left. Try to achieve this orientation using a right-hand-coordinate transformation matrix (a transformation matrix where the determinant of the matrix equals 1).
- 124 F1) Insert the same subfigure from above named "ARROW" into the NENTITY drawing at the model location (4,9,0) so that the arrowhead points right. Try to achieve this



orientation using a left-hand-coordinate transformation matrix (a transformation matrix where the determinant of the matrix equals -1).

126 F0) Insert a rational b-spline curve of degree 5 through the points: (5.5,9,0), (5.75,9.25,0), (6.25,9,0), and (6.5,9,0).

128 F0) a) Insert a rational b-spline curve of degree 5 through the points: (7.5,9.5,1), (7.75,9.75,1), (8.25,9.5,1), and (8.5,9.5,1).

b) Insert a rational b-spline curve of degree 5 through the points: (7.5,8.75,0), (7.75,9,0), (8.25,8.75,0), and (8.5,8.75,0).

c) Create a rational b-spline surface of degree 5 between these two curves. Mesh the surface to make 5 mesh spacings in both the horizontal and vertical directions.

128 F2) a) Insert a rational b-spline curve of degree 7 that takes the form of a circle through the points:

(10,9.25,0)  
(9.5,8.75,0)  
(10,8.25,0)  
(10.5,8.75,0)

b) Copy this circular shaped rational b-spline into the  $z = 1$  plane. This will make a curve through the points:

(10,9.25,1)  
(9.5,8.75,1)  
(10,8.25,1)  
(10.5,8.75,1)

c) Rotate the two curves -120 degrees around an x-axis that passes through the origin of the first curve (the curve on the  $z=0$  plane).

d) Create a rational b-spline surface of degree 7 between the two curves to make a cylindrical shaped surface. Mesh the surface to make 5 mesh spacings in both the horizontal and vertical directions.

128 F3) a) Insert a rational b-spline curve of degree 7 that takes the form of a circle through the points:

(12,9.25,0)  
(11.5,8.75,0)  
(12,8.25,0)

(12.5,8.75,0)

- b) Insert a rational b-spline curve of degree 7 that takes the form of a circle through the points:

(12,9,1)  
(11.75,8.75,1)  
(12,8.5,1)  
(12.25,8.75,1)

- c) Rotate the two curves -120 degrees around an x-axis that passes through the origin of the first curve (the larger curve).
- d) Create a rational b-spline surface of degree 7 between the two curves to make a cone shaped surface. Mesh the surface to make 5 mesh spacings in both the horizontal and vertical directions.

128 F4) a) Insert a line from (14,8.5,0) to (14,9.75,0).

- b) Insert a circle through the three points:

(14,9.5,0)  
(13.5,9,0)  
(14,8.5,0)

- c) Rotate the circle around the line to create a rational b-spline surface of degree 5 shaped like a sphere (IGES entity 128 Form 4). Mesh the surface 5 X 5.

128 F5) a) Insert a line from (16,9.5,0) to (16,8.5,0).

- b) Insert a circle through the three points:

(16.5,9.25,0)  
(16.25,9,0)  
(16.5,8.75,0)

- c) Rotate the circle around the line to create a rational b-spline surface of degree 5 shaped like a torus or donut (IGES entity 128 Form 5). Mesh the surface 10 X 10.

128 F9) a) Insert a spline of degree 2 through the points:

(17.5,9.25,1)  
(18,9.75,1)  
(18.5,9.25,1)

- b) Insert another spline of degree 2, but this time through the points:

(17.5,8.5,0)  
(18,9,0)  
(18.5,8.5,0)

- c) Generate a rational b-spline general quadratic (degree 2) surface (IGES entity 128 Form 9) between the two splines. Mesh the surface 5 X 5.

- 130) a) Insert a circular arc through the three points:

(19.5,8.75,0)  
(20,9.25,0)  
(20.5,8.75,0)

- b) Create an offset of this curve that is 0.25 inches smaller in radius. Try to produce the offset curve entity in the IGES file (130).

- 140) a) Insert a line from (1.5,7.5,0) to (1.5,6.5,0).

- b) Insert a circular arc through the points:

(2.5,7.5,0)  
(2.25,7,0)  
(2.5,6.5,0)

- c) Create a planar ruled surface between the line and the arc meshed with 5 horizontal mesh spacings.

- d) Offset this surface into the negative z-direction 1 inch. Try to produce the offset surface entity in the IGES file (140).

- e) Rotate both surfaces 20 degrees around an x-axis to make both surfaces visible. The rotation point should be the lower end of the line component of the original ruled surface.

- 142) a) Insert a parametric spline through the points:

(3.5,7.5,1)  
(3.75,7.75,1)  
(4.25,7.5,1)  
(4.5,7.5,1)

- b) Insert a second parametric spline, but this time through the points:

(3.5,6.75,0)  
(3.75,7,0)  
(4.25,6.75,0)  
(4.5,6.75,0)

- c) Generate a parametric spline surface between these two splines. Mesh it 5 X 5.
  - d) Insert a circle of diameter 0.5 inches centered at (4,7.25,0).
  - e) Project the circle 2 inches into the positive z-direction so that it cuts through the parametric spline surface and leaves the projection of the curve on the parametric surface.
  - f) Delete all construction entities except for the circle; blank the circle.
- 144)
- a) Insert a parametric spline through the points:
    - (5.5,7.5,1)
    - (5.75,7.75,1)
    - (6.25,7.5,1)
    - (6.5,7.5,1)
  - b) Insert a second parametric spline, but this time through the points:
    - (5.5,6.75,0)
    - (5.75,7,0)
    - (6.25,6.75,0)
    - (6.5,6.75,0)
  - c) Generate a parametric spline surface between these two splines. Mesh it 5 X 5.
  - d) Insert a circle of diameter 0.5 inches centered at (6,7.25,0).
  - e) Project the circle 2 inches into the positive z-direction so that it cuts through the parametric spline surface and leaves the projection of the curve on the parametric surface.
  - f) Delete all construction entities except for the circle; blank the circle.
  - g) Trim the parametric spline surface back to the spline that is left by the projected curve.

FOR THE FOLLOWING THREE DIMENSIONS, USE THE STANDARD BLOCK (OR DEFAULT) TEXT FONT WITH A TEXT HEIGHT OF 0.156 INCHES. ALSO, USE THE IGES-DEFINED TRIANGLE TYPE ARROWHEADS WITH ARROWHEAD HEIGHT = 0.15 INCHES AND WIDTH = 0.05 INCHES.

- 202)
- a) Insert a line from (7.5,7,0) to (7.25,6.75,0).
  - b) Insert a line from (7.25,6.75,0) to (7.5,6.75,0).

- c) Create an angular dimension between these two lines. Place the bottom-left-justified text "45.00° " at (7.9,7.1,0).
- 206) a) Insert a circle at (9.5,7,0) with a diameter of 0.5 inches.
- b) Create a diameter dimension with the two arrows on the inside of the circle and the text " $\phi$ .500" on the outside of the circle. Place the bottom-left-justified text at (9.9,7.3,0).
- 210) a) Insert a point at (11.5,6.75,0).
- b) Create a label with the text "LABEL" that points to the point entity. The leader that leads from the point to the label should be two-segmented. Place the arrowhead on the point, the end of the leader's first segment at (11.46,7.25,0), and the end of the second segment at (11.75,7.25,0).

FOR THE FOLLOWING GENERAL NOTE ENTITIES (212), USE THE STANDARD BLOCK (OR DEFAULT) TEXT FONT, A TEXT HEIGHT OF 0.125 INCHES, AND A TEXT WIDTH OF 0.1 INCHES. SELECT THE ORIGIN OF THE TEXT BOTTOM-LEFT-JUSTIFIED UNLESS OTHERWISE STATED.

- 212 F0) a) Insert the text string "SIMPLE" horizontally at (13.5,7.125,0).
- b) Insert the text string "SIMPLE" vertically at (14.5,7.5,0). Change the text slant to -30 degrees.
- 212 F1) Insert the text "DUAL" and "STACK" as one text string such that the words are both left justified and the second word is displayed below the first. Place the origin of the text at (15.5,7.125,0).
- 212 F2) a) Insert the text "IMBEDDED" with the origin of the text string at (17.5,7.125,0).
- b) Change the font of the middle three letters, "BED", of the text string to the IGES Font 1002. This will change the letters "BED" to the symbols " $\div$   $\Delta$   $\geq$ ".
- 212 F3) Insert the text string "SSUPER" such that the origin is at (19.5,7.125,0) and the word "SUPER" is a superscript of "S".
- 212 F4) Insert the text string "SSUB" such that the origin is at (1.5,5.125,0) and the word "SUB" is a subscript of "S".

- 212 F5) Insert the text "S", "SUPER", and "SUB" as one text string such that the origin is at (3.5,5.125,0) and the word "SUPER" is a superscript of "S" and "SUB" is a subscript of "S".
- 212 F6) Insert the text "M", "STACK", and "LEFT" as one multi-lined text string such that the origin of the text string is at (5.5,5.25,0) and all words are left-justified to a common margin.
- 212 F7) Insert the text "M", "STACK", and "CENTER" as one multi-lined text string that is bottom-center-justified with the origin at (8,5.25,0).
- 212 F8) Insert the text "M", "STACK", and "RIGHT" as one multi-lined text string that is bottom-right-justified with the origin at (10.5,5.25,0).
- 212 F100) Insert a multi-lined text string that is bottom-left-justified with the origin at (11.5,5.25,0) as follows:
- a) 1st line is " FRAC" such that the substring "FRAC" is a subscript of the two spaces.
  - b) 2nd line is "S ----".
  - c) 3rd line is " TION" such that the substring "TION" is a superscript of the two spaces.

The substring "FRAC" is a subscript of the spaces so that it appears to be a superscript of the "S" and vice versa for the substring "TION".

- 212 F101) Insert a multi-lined text string with the origin at (13.5,5.5,0) as follows:
- a) 1st line is " TO" such that the substring "TO" is a subscript of the six spaces.
  - b) 2nd line is "DUAL ---".
  - c) 3rd line is " P" such that the substring "P" is a superscript of the seven spaces.
  - d) 4th line is blank.
  - e) 5th line is " BOT" such that the substring "BOT" is a subscript of the seven spaces.
  - f) 6th line is "STACK -----".
  - g) 7th line is " TOM" such that the substring "TOM" is a superscript of the seven spaces.

- 212 F102) Insert a multi-lined text string with the origin at (15.125,5.25,0) as follows:
- a) 1st line is " BED ACT" with four spaces before "BED" and eight spaces before "ACT" and such that the substrings "BED" and "ACT" are both subscripts of the spaces.

- b) 2nd line is "IM ----- ≠ FR -----".
- c) 3rd line is "        DED                ION" with four spaces before "DED" and eight before "ION" and such that the substrings "DED" and "ION" are both superscripts of the spaces.

212 F105) Insert a multi-lined text string with the origin at (17.125,5.875,0) as follows:

- a) 1st line is "                                O" such that the substring "O" is a subscript of the twelve spaces.
- b) 2nd line is "                                T -----". There are nine spaces before the "T".
- c) 3rd line is "                                P" such that the substring "P" is a superscript of the twelve spaces.
- d) 4th line is blank.
- e) 5th line is "                                SUP" such that the substring "SUP" is a subscript of the four spaces.
- f) 6th line is "FR -----".
- g) 7th line is "                                SUB" such that the substring "SUB" is a superscript of the four spaces.
- h) 8th line is blank.
- i) 9th line is "                                TT" such that the substring "TT" is a subscript of the twelve spaces.
- j) 10th line is "                                BO -----". There are eight spaces before "BO".
- k) 11th line is "                                OM" such that the substring "OM" is a superscript of the twelve spaces.

INSERT THE FOLLOWING LEADERS OR ARROWS (214) WITH THE ARROWHEAD POINTING LEFT, THE ARROWHEAD HEIGHT = 0.15 INCHES, AND ARROWHEAD WIDTH = 0.05 INCHES UNLESS OTHERWISE STATED. REFER TO THE IGES SPECIFICATION OR TO THE LARGE C-SIZED, N-ENTITY PLOT FOR A PICTORIAL DESCRIPTION OF THE DESIRED ARROWHEAD TYPE.

- 214 F1) Insert a leader with a wedge type arrowhead between the points (19.5,5.0,0) and (20.5,5.0,0).
- 214 F2) Insert a leader with a triangle type arrowhead between the points (1.5,3.0,0) and (2.5,3.0,0).
- 214 F3) Insert a leader with a filled triangle type arrowhead between the points (3.5,3.0,0) and (4.5,3.0,0).
- 214 F4) Insert a leader with no arrowhead between the points (5.5,3.0,0) and (6.5,3.0,0).
- 214 F5) Insert a leader with a circle type arrowhead between the points (7.5,3.0,0) and (8.5,3.0,0). Here, both the arrowhead height and width should be 0.1 inches.

- 214 F6) Insert a leader with a filled circle type arrowhead between the points (9.5,3.0,0) and (10.5,3.0,0). Here, both the arrowhead height and width should be 0.1 inches.
- 214 F7) Insert a leader with a rectangle type arrowhead between the points (11.5,3.0,0) and (12.5,3.0,0). Here, both the arrowhead height and width should be 0.1 inches.
- 214 F8) Insert a leader with a filled rectangle type arrowhead between the points (13.5,3.0,0) and (14.5,3.0,0). Here, both the arrowhead height and width should be 0.1 inches.
- 214 F9) Insert a leader with a slash type arrowhead between the points (15.5,3.0,0) and (16.5,3.0,0). Here, both the arrowhead height and width should be 0.1 inches.
- 214 F10) Insert a leader with an integral sign type arrowhead between the points (17.5,3.0,0) and (18.5,3.0,0). Here, both the arrowhead height and width should be 0.1 inches.
- 214 F11) Insert a leader with an open triangle type arrowhead between the points (19.5,3.0,0) and (20.5,3.0,0).

FOR THE NEXT EIGHT ENTITIES (216 - 228 FORM 3), USE THE STANDARD BLOCK (OR DEFAULT) TEXT FONT AND TEXT HEIGHT OF 0.156 INCHES. FURTHERMORE, USE TRIANGLE TYPE ARROWHEADS WITH ARROWHEAD HEIGHT=0.15 INCHES AND WIDTH=0.05 INCHES.

- 216) a) Insert two points: one at (1.5,0.5,0) and one at (2.5,0.5,0).
- b) Create a linear dimension between the two points centering the text "1.000" around (2,1.25,0). The arrows should be outside the witness lines and approximately 0.2 inches long from arrowhead to tail.
- 218) a) Insert two points: one at (3.5,0.5,0) and one at (4.25,0.5,0).
- b) Dimension, ordinately, the right point from the left. Place the bottom-left-justified text ".000" at (3.58,1.19,0) and text ".750" at (4.33,1.19,0). Both text blocks should be rotated 90 degrees counterclockwise. Leaders with no arrowheads or witness lines should extend from just above the points to the beginning of the text blocks.
- 220) a) Insert a point at (6,0.5,0).



- b) Dimension this point by placing the origin of the bottom-left-justified text ".000" at (5.73,1.33,0) and inside of a circle.

If the CAD system positions the point dimension differently and more information is needed: the circle's center is at (6,1.41,0) and radius is 0.314 inches, and the tail of the leader that connects the point to the bottom of the circle is at (6,1.09,0).

- 222) a) Insert a circular arc centered at (7.25,0.5,0) with a radius of 0.5 inches and traced out from 0 to 90 degrees counterclockwise.
- b) Radially dimension this arc. Place the origin of the bottom-left-justified text "R .500" at (7.85,1.42,0). Place the arrowhead of the two-segmented leader on the outside of the arc, the first segment's end at (7.5,1.5,0), and the second segment's end at (7.75,1.5,0).

- 228 F0) Create a general symbol as one entity containing the following entities:

A general symbol is defined as a symbol which is not necessarily a standard symbol.

- a) A diamond shaped closed figure (one entity) that connects the approximate points:

(10.0,1.5,0)  
(9.5,1,0)  
(10,0.5,0)  
(10.5,1,0).

- b) A line from approximately (9.5,1,0) to (10.5,1,0).

- c) A text block "AB" with its bottom-left-justified origin at (9.875,0.75,0).

- 228 F1) Create a datum feature symbol as one entity containing the following entities:

A datum feature symbol is defined as a symbol consisting of a frame containing the datum identifying letter preceded and followed by a dash.

- a) A rectangle shaped closed figure (one entity) that connects the approximate points:

(11.75,1,0)  
(11.75,1.31,0)  
(12.36,1.31,0)

(12.36,1,0).

- b) A text string "-C-" with its bottom-left-justified origin at (11.83,1.08,0).

228 F2) Create a datum target symbol as one entity consisting of the following entities:

A datum target symbol is defined as a symbol consisting of a circle divided horizontally into two halves with the lower half containing a letter identifying the associated datum, followed by the target number, and an entity attached to the symbol pointing to the target.

- a) A circle approximately centered at (14.25,1.25,0) with a radius of 0.375.
- b) A line from approximately (13.875,1.25,0) to (14.625,1.25,0).
- c) A text block "A2" with its bottom-left-justified origin at (14.125,1,0).
- d) Leader with its arrowhead near (13.625,0.625,0) and its tail on the circle near (13.99,0.98,0).

228 F3) Create a feature control frame as one entity containing the following entities:

A feature control frame is defined as a symbol consisting of a frame divided into compartments containing the geometric characteristic symbol followed by the tolerance.

- a) A rectangle shaped closed figure (one entity) connecting the approximate points:  
(15.5,1,0)  
(15.5,1.31,0)  
(16.55,1.31,0)  
(16.55,1,0)
- b) A text block containing a perpendicular symbol, a frame divider, and then the text ".02 ". Place the entire text block's bottom-left-justified origin at (15.58,1.08,0).

230) a) Insert four lines from:

(17.5,1.5,0) to (18.5,1.5,0)  
(18.5,1.5,0) (18.5,0.5,0)  
(18.5,0.5,0) (17.5,0.5,0)  
(17.5,0.5,0) (17.5,1.5,0).

- b) Utilize the sectioned area entity (230) to crosshatch between the lines. The fill should be solid parallel line segments from section edge to edge. They should be angled 45 degrees counterclockwise from the x-axis and spaced 0.2 inches apart.

Title block) Insert the title block "CALC TEST NETWORK  
MIL-D-28000  
CLASS II  
REFERENCE DRAWING  
N-ENTITY".

This multi-lined text should be bottom-center-justified with the text origin at (20,1.2,0). The text height and width should both be 0.09 inches.

## Incident Report

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## Incident Report

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## Incident Report

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Attachment C

L-bracket Generation Script

## L-bracket Generation Script

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- 1) Create a part named "LBRACKET".
- 2) If the CAD system allows for a separate drawing file within the part, create a C-sized drawing named "LBRACKET" with the drawing origin in the lower left-hand corner.

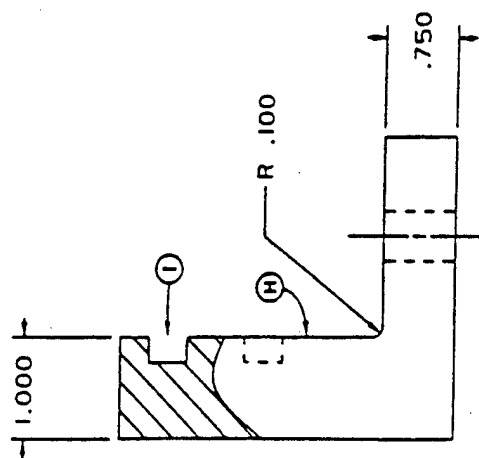
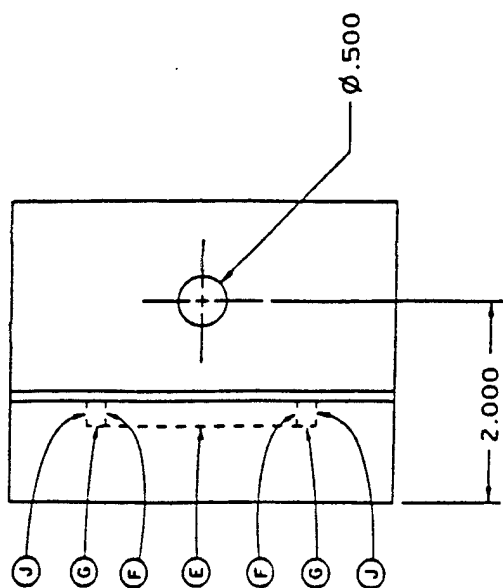
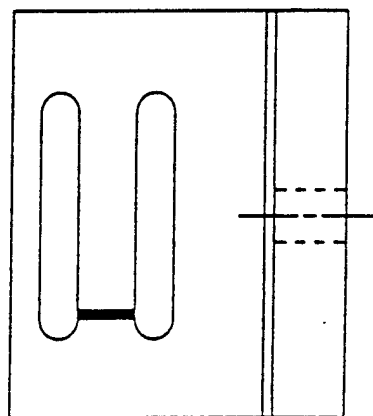
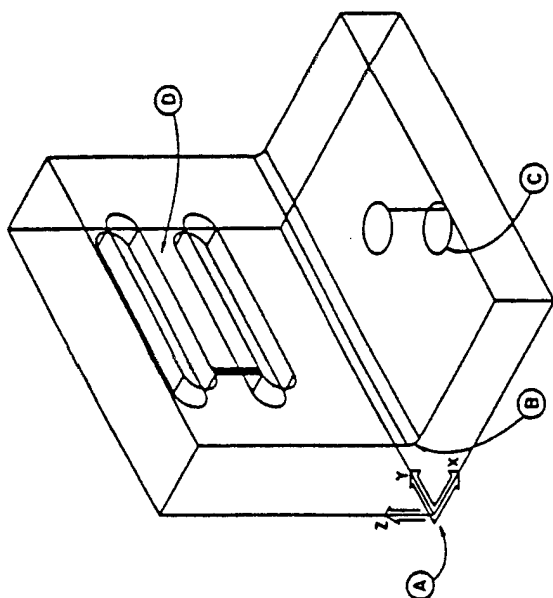
VIEW THE MODEL IN THE ISOMETRIC VIEW WITH A TOP CONSTRUCTION PLANE SELECTED FOR ENTITY INSERTION UNTIL FURTHER NOTICE. THIS CONSTRUCTION PLANE OR REQUIRED COORDINATE ORIENTATION IS SHOWN (LABEL A) ON THE A-SIZED, L-BRACKET PLOT ATTACHED TO THIS SCRIPT. ALL MODEL COORDINATES (X,Y,Z) REFERRED TO IN THE SCRIPT ARE BASED ON THIS COORDINATE ORIENTATION.

CREATE THE FOLLOWING ENTITIES IN THE DEFAULT COLOR OF THE CAD SYSTEM AND ON LEVEL 1 UNTIL FURTHER NOTICE.

- 3) Create a horizontal line from (0,0,0) to (3,0,0).
- 4) Create a vertical line from (3,0,0) to (3,0,0.75).
- 5) Create a horizontal line from (3,0,0.75) to (1,0,0.75).
- 6) Create a vertical line from (1,0,0.75) to (1,0,3.5).
- 7) Create a horizontal line from (1,0,3.5) to (0,0,3.5).
- 8) Create a vertical line from (0,0,3.5) to (0,0,0).
- 9) Create a fillet with a radius of 0.1 inches at the intersection of the [(1,0,3.5), (1,0,0.75)] [(1,0,0.75), (3,0,0.75)] and [(1,4,3.5), (1,4,0.75)] [(1,4,0.75), (3,4,0.75)] lines. This is labeled "B" on the L-bracket plot.
- 10) Create a three-dimensional model of this L-shape by projecting it from y=0 to y=4. If the system does not have projection capabilities, one must create the three-dimensionality by hand. The created lines should be:

- |    |      |            |    |             |
|----|------|------------|----|-------------|
| a) | from | (0,0,0)    | to | (0,4,0).    |
| b) |      | (0,0,3.5)  |    | (0,4,3.5).  |
| c) |      | (1,0,3.5)  |    | (1,4,3.5).  |
| d) |      | (3,0,0.75) |    | (3,4,0.75). |
| e) |      | (3,0,0)    |    | (3,4,0).    |
| f) |      | (0,4,3.5)  |    | (1,4,3.5).  |
| g) |      | (3,4,0)    |    | (3,4,0.75). |
| h) |      | (0,4,3.5)  |    | (0,4,0).    |





- i) (0,4,0) (3,4,0).
  - j) (3,4,0.75) (1,4,0.75).
  - k) (1,4,0.75) (1,4,3.5)
- 11) Create a circle, while still in the top construction plane, 0.5 inches in diameter at (2,2,0). This circle is labeled "C" on the plot.
- 12) Project the circle through the 1-bracket 0.75 inches in the positive z-direction to display the top of the cylinder at a center of (2,2,0.75).
- 13) Create a 3D slot (Label D) with the following entities:
  - a) line from (1,1,3.2) to (1,3,3.2).
  - b) line from (1,1,2.8) to (1,3,2.8).
  - c) circular arc through the points (1,1,3.2), (1,0.8,3), and (1,1,2.8).
  - d) circular arc through the points (1,3,3.2), (1,3.2,3), and (1,3,2.8).
- 14) Project this long oval 0.25 of an inch into the negative x-direction. This will create the following entities:
  - a) line from (0.75,1,2.8) to (0.75,3,2.8).
  - b) line (0.75,1,3.2) (0.75,3,3.2).
  - c) line (1,1,2.8) (0.75,1,2.8).
  - d) line (1,3,2.8) (0.75,3,2.8).
  - e) line (1,1,3.2) (0.75,1,3.2).
  - f) line (1,3,3.2) (0.75,3,3.2).
  - g) circular arc through the points (0.75,1,3.2), (0.75,0.8,3), and (0.75,1,2.8).
  - h) circular arc through the points (0.75,3,3.2), (0.75,3.2,3), and (0.75,3,2.8).
- 15) Construct a subfigure out of the slot entities just drawn and save it under the name "SUBFIG". If needed, copy the entities into a separate part and prepare the subfigure there. Maintain the existing origin relationship, in other words, the entity positions should stay the same in relationship to (0,0,0).
- 16) Insert the subfigure "SUBFIG" into the model at (0,0,-1). This brings the subfigure into the model one inch below the existing slot. Use the "definition levels" entity (IGES entity 406 Form 1) if possible to assign the subfigure to level four. If this entity is not available on the CAD system, assign the subfigure to level four any way possible.
- 17) Create an "ordered group" using IGES entity 402 Form 15 if possible out of the entities which comprise the top slot (the slot that is not the subfigure).

- 18) Display this model in the following four views placed at the following locations on a two-dimensional drawing sheet:

- a) front view origin at (3,3). Name it "FRONT".
- b) top view origin at (3,10). Name it "TOP".
- c) side view origin at (12,3). Name it "SIDE".
- d) isometric view origin at (12,10). Name it "ISO".

If the system does not have this capability, make the screen resemble the plot as closely as possible.

- 19) Create a model line from (1,1,2.8) to (1,1,2.2), then widen the line to produce the "line widening" entity (406 Form 5) in the IGES file. Widen the line to 0.1 inches to the right of the line with no extension and with squared corners. This is meant to resemble, for example, a strip of metalization.
- 20) Erase from view (don't delete) making use of the "views visible" entity (402 Form 3) the following model lines from the various views for detailing purposes.
- a) Erase from the front and top views the lower slot (the subfigure).
  - b) Erase from the top view the two long slot lines which appear superimposed. See label "E".
  - c) Erase from the top view the four horizontal short slot lines which reside near the ends of the slot. See label "F". Some of these lines are superimposed on the others.
  - d) Erase from the top view the two arcs from the upper slot which appear as short vertical lines. See label "G".
  - e) Erase from the front view the two superimposed model lines marked by "H" to allow for properly detailing the slot.
  - f) Erase from the front view the two arcs, seen from the side as short vertical lines of the upper slot, to expose the cut out. See label "I".
  - g) Erase from the front and side views the two circles and the projection line of the through-hole.

EXIT THE MODEL MODE AND ENTER THE DRAW MODE IF POSSIBLE TO CREATE THE REMAINING ENTITIES. DRAW MODE REQUIRES ONE TO INSERT ENTITIES ON A 2D DRAWING SHEET.

- 21) Create two solid detailing lines on the front view from the 2D draw mode coordinates (4,3.85) to (4,5.8) and (4,6.2) to (4,6.5).
- 22) Create the following detailing lines on the top and front views:
  - a) line from (3.75,10.8) to (4,10.8)
  - b) line (3.75,13.2) (4,13.2)
  - c) line (3.75,5.2) (3.75,4.8)
  - d) line (3.75,10.8) (3.75,13.2)
  - e) line (3.75,11) (4,11)
  - f) line (3.75,13) (4,13)
- 23) Dash the above detailing lines a) through f) using the line font procedure that will generate a "line font" entity specified by a "repeating visible-blank pattern" (304 Form 2) in the IGES file. All dashes should be .1 inch long and be spaced by .1 inch.
- 24) Create the following detailing lines on the front view:
  - a) line from (3.75,4.8) to (4,4.8)
  - b) line (3.75,5.2) (4,5.2).
- 25) Dash the above detailing lines a) and b) with a line font specified by a "repeating template subfigure" (304 Form 1). The subfigure should be a line from (0,0,0) to (0.1,0,0) and named "DASH". The repeating subfigure should begin every 0.2 inches making a dashed line with 0.1 inch long dashes and 0.1 inch spaces.
- 26) Create dashed detailing lines on the front and side views in draw mode space to represent the hidden lines from the through-hole. The lines should be located as follows and dashed in such a way that the line font type appears in the DE section index 4 of the IGES file. All dashes should be 0.1 inch long and be spaced by 0.1 inch.
  - a) line from (4.75,3.75) to (4.75,3)
  - b) line (5.25,3.75) (5.25,3)
  - c) line (13.75,3.75) (13.75,3)
  - d) line (14.25,3.75) (14.25,3)
- 27) Create a cubic parametric spline curve through the points:
  - a) (3,5)
  - b) (3.5,5.5)
  - c) (4,5.4)
- 28) Crosshatch the l-bracket area above the spline with solid lines at an angle of 45 degrees and with 0.2 inch

spacing. This depicts the exposed interior of the l-bracket.

- 29) Create centerlines through the points (5,3.325) on the front view and (14,3.325) on the side view (to create the IGES entity 106 Form 20). The approximate length of the centerlines should be 1.25 inches. These centerlines represent the center of the through-hole as viewed from the front and side.
- 30) Create a crosshair centerline through the circle center at (5,12) on the top view (to create entity 106 Form 21). The approximate length of the crosshairs should be 1.25 inches.

INSERT THE FOLLOWING FIVE DIMENSIONS USING THE STANDARD BLOCK (OR DEFAULT) TEXT FONT AND A TEXT HEIGHT OF 0.2 INCHES. ALSO, USE THE IGES-DEFINED TRIANGLE TYPE ARROWHEAD WITH THE ARROWHEAD HEIGHT 0.15 INCHES AND WIDTH 0.05 INCHES.

- 31) Dimension the one inch thickness of the l-bracket's vertical leg on the front view at (3.5,7.5). The text should state "1.000". Refer to the L-bracket plot for a pictorial description of this location.
- 32) Dimension the two inch distance between the center of the circle and the left side of the l-bracket on the top view at (4,9). The text should state "2.000". Again, refer to the plot.
- 33) Dimension the 0.75 inch thickness of the l-bracket's horizontal leg on the front view at (7,3.375). The text should state ".750".
- 34) Dimension the 0.1 inch fillet with a two segmented leader line with the segment ends at (5,5) and (5.5,5). The text should state "R .100".
- 35) Dimension the 0.5 inch diameter circle with a two segmented leader line with the segment ends at (6.5,10.5) and (7,10.5). The text should state " $\phi$ .500".
- 36) Create a border around the l-bracket's four views. The border is made up of four lines from:

- a) (1,1) to (21,1)
- b) (21,1) to (21,16)
- c) (21,16) to (1,16)
- d) (1,16) to (1,1)

- 37) Insert two lines to create a title block border from:

- a) (19,1) to (19,3)

b) (19,3) (21,3)

- 38) Insert into the title block the text "CALS TEST NETWORK  
MIL-D-28000  
CLASS II  
REFERENCE DRAWING  
L-BRACKET".

The text should be multi-lined and bottom center justified around the origin (20,2.25). Text height and width should be 0.09 inches.

- 39) Assign the crosshatching the color magenta by using the "color definition" entity (314) if possible.
- 40) Assign the dimensions (the text, leaders, witness lines, etc.) the color yellow in such a way that the color appears in index 13 of the DE section of the IGES file.
- 41) Assign the two circles and the cylinder's projection line magenta in the isometric view and green in the top view, making use of the "views visible, color, line weight" entity (402 form 4) if possible. Make sure the entities are not visible in the front or side views.
- 42) Assign all model entities to level one, dimension entities to level two, and the detailing entities (dashed lines, crosshatching, centerlines, spline, border lines, title block lines, and title block text) to level three. This level information should appear in the DE section field five of the outputted file.
- 43) Use the "level function" entity (406 form 3) to transfer the meaning of the levels in the sending system.

## Incident Report

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## Incident Report



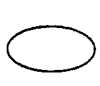
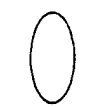




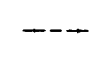
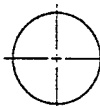
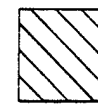
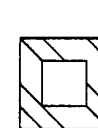



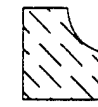



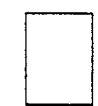
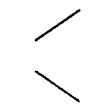




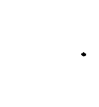




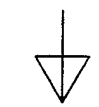




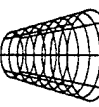
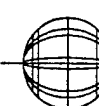
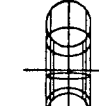





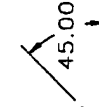


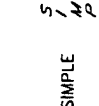


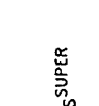
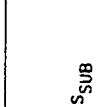
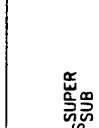

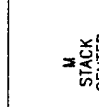

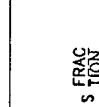
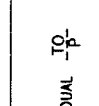
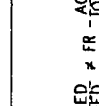

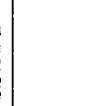
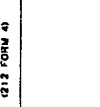

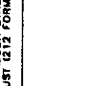


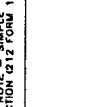
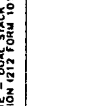

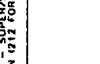

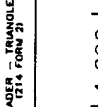
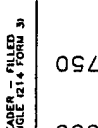

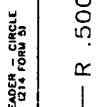

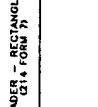

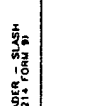

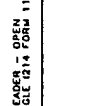
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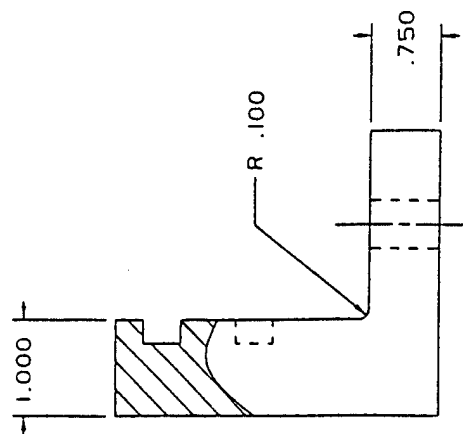
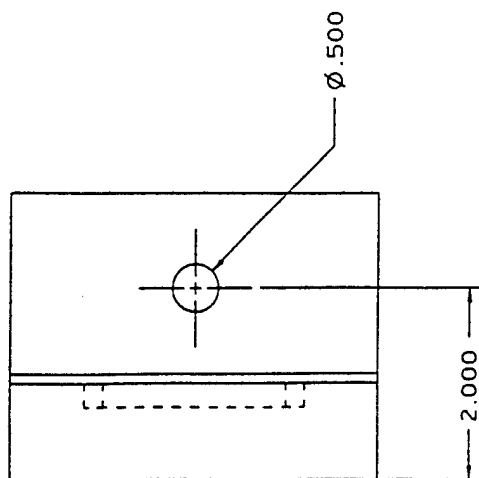
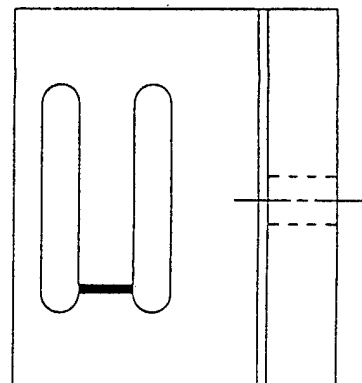
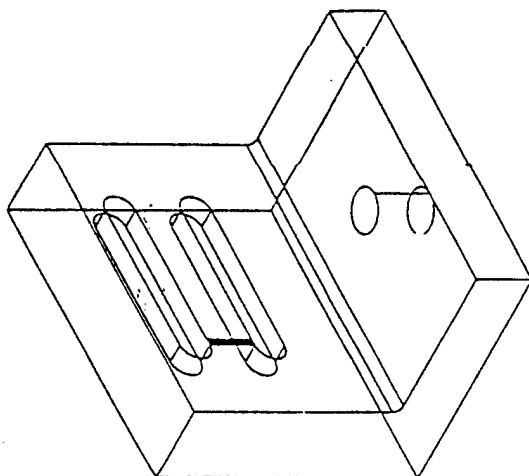
Attachment D

N-entity C-sized Plot

									
CIRCULAR ARC (110B)	COMPOSITE CURVE (1102)	CONIC ARC - GENERAL (1104 FORM D)	CONIC ARC - ELLIPSE (1104 FORM 1)	CONIC ARC - HYPERBOLA (1104 FORM 2)	CONIC ARC - PARABOLA (1104 FORM 3)	LINEAR PLANAR CURVE (1108 FORM 1)	COORDINATE TRIPLES (1108 FORM 12)	CENTERLINE THRU POINTS (1108 FORM 20)	CENTERLINE THRU CENTERS (1108 FORM 21)
									
SECTION 31 (1108 FORM 31)	SECTION 32 (1108 FORM 32)	SECTION 33 (1108 FORM 33)	SECTION 34 (1108 FORM 34)	SECTION 35 (1108 FORM 35)	SECTION 36 (1108 FORM 36)	SECTION 37 (1108 FORM 37)	SECTION 38 (1108 FORM 38)	WITNESS LINE (1108 FORM 40)	SIMPLE CLOSED AREA (1108 FORM 43)
									
UNBOUNDED PLANE (1108 FORM D)	BOUNDED PLANE (1108 FORM 1)	LINE (1110)	PARAMETRIC SPLINE CURVE (1112)	PARAMETRIC SPLINE SURFACE (1114)	POINT (1118)	RULED SURFACE - ARC LENGTH (1118 FORM D)	RULED SURFACE - PARAMETRIC (1118 FORM 1)	SURFACE OF REVOLUTION (1120)	TABULATED CYLINDER (1123)
									
TRANSFORMATION MATRIX D-1 (1124 FORM D)	TRANSFORMATION MATRIX D-1 (1124 FORM 1)	RATIONAL B-SPLINE CURVE (1126 FORM D)	RATIONAL B-SPLINE SURFACE (1126 FORM 2)	RBS RIGHT CIRCULAR CYLINDER (1128 FORM 2)	RBS CONE (1128 FORM 3)	RBS SPHERE (1128 FORM 4)	RBS TORUS (1128 FORM 5)	RBS GENERAL QUADRATICS (1128 FORM 9)	OFFSET CURVE (1130)
									
OFFSET SURFACE (1140)	CURVE ON PARAMETRIC SURFACE (1142)	TRIMMED PARAMETRIC SURFACE (1144)	ANGULAR DIMENSION (1202)	DIAMETER DIMENSION (1206)	LABEL (1210)	SIMPLE (1212 FORM D)	DUAL STACK (1212 FORM 1)	IM: aDED (1212 FORM 2)	S SUPER (1212 FORM 3)
									
S SUB (1212 FORM 4)	S SUPER (1212 FORM 5)	M STACK LEFT (1214 FORM 6)	M STACK CENTER (1214 FORM 7)	M STACK RIGHT (1214 FORM 8)	S FRACTION (1216 FORM 100)	DUAL TO-BOT (1216 FORM 101)	IM: BEDDED (1216 FORM 103)	T - P (1216 FORM 105)	LEADER - WEDGE (1216 FORM 1)
									
LEADER - TRIANGLE (1214 FORM 2)	LEADER - FILLED TRIANGLE (1214 FORM 3)	LEADER - NO ARROW (1214 FORM 4)	LEADER - CIRCLE (1214 FORM 5)	LEADER - FILLED CIRCLE (1214 FORM 6)	LEADER - RECTANGLE (1214 FORM 7)	LEADER - FILLED RECTANGLE (1214 FORM 8)	LEADER - SLASH (1214 FORM 9)	LEADER - INTEGRAL SIGN (1214 FORM 10)	LEADER - OPEN TRIANGLE (1214 FORM 11)
									
LINEAR DIMENSION (1218)	ORDINATE DIMENSION (1218)	POINT DIMENSION (1220)	RADIUS DIMENSION (1222)	SYMBOL - GENERAL (1228 FORM D)	SYMBOL - DATUM FEATURE (1228 FORM 1)	SYMBOL - DATUM TARGET (1228 FORM 2)	SYMBOL - FEATURE CONTROL (1228 FORM 3)	SECTIONED AREA (1230)	CALS TEST NETWORK MIL-D-28000 (1232)

Attachment E

L-bracket C-sized Plot



Attachment F

Procedures for Executing the CTN Reference Drawing  
IGES Post-processor Test

Procedures for Executing the CTN Reference Drawing  
IGES Post-processor Test

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1. Receive a 9-track, MIL-STD-1840A formatted tape from the CALS Test Network containing both the N-entity and L-bracket IGES files in MIL-D-28000 Class II format.
2. Read the MIL-STD-1840A declaration information and load the IGES files onto your CAD system storage. The file names are shown in the 1840A declaration files and header fields.
3. Read and, if needed, strip the MIL-STD-1840A headers from the IGES files.
4. Post-process the IGES files into your CAD system, noting all errors the system reports. Call the CAD parts the same names as the file names.
5. Inspect the resulting models and answer the questions listed in the evaluation scripts. If you answer "no" to any of the questions, explain why on the incident report sheets which follow the script. Attach additional sheets if necessary.
6. Generate a hard copy plot of each drawing.
7. If you are conducting a self-test, collect the evaluation scripts, plots, and any incident reports for evaluation. If you pre-arranged a formal CTN test and obtained CTN approval, send the completed evaluation scripts, plots, and any incident reports to the CALS Test Network.
8. Evaluate the data. The CALS Test Network will and anyone conducting a self-test should:
  - a. Examine the incident reports, plots, and evaluation scripts.
  - b. Pinpoint processor, IGES standard, and/or military standard inefficiencies.
  - c. Bring the findings to the appropriate parties for correction (either vendor, CAD system operator, IGES Committee, or the military standard's sponsor).
  - d. On CTN-arranged tests, the CTN will publicly publish results of findings.

Attachment G

N-entity Evaluation Script

## N-entity Evaluation Script

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Answer the following questions:

100)

- ☐ a) Is the circular arc centered at (2,15,0)?
- ☐ b) Is the arc radius 0.5 inches?
- ☐ c) Is the arc traced out from 270 to 180 degrees counterclockwise?

102)

- ☐ a) Is the composite curve made up of a point, line, circular arc, and spline?
- ☐ b) Is the point at (3.5,15,0)?
- ☐ c) Does the line extend from (3.5,15,0) to (3.5,15.5,0)?
- ☐ d) Is the arc centered at (3.5,15,0) with a radius of 0.5 inches and traced out from 0 to 90 degrees counterclockwise?
- ☐ e) Does the spline curve between the endpoints (4,15,0) and (4.75,14.75,0)?
- ☐ f) Does the composite curve arc as a single entity (selectable by one touch)?

104 Form 0)

- ☐ a) Is the general conic arc an ellipse centered at (6,15,0)?
- ☐ b) Is the major axis 1.0 inches?
- ☐ c) Is the minor axis 0.5 inches?
- ☐ d) Is the ellipse positioned so that the long axis parallels the vertical axis (is the ellipse skinny and tall)?

104 Form 1)

- ☐ a) Is the ellipse centered at (8,15,0)?
- ☐ b) Is the major axis 1.0 inches?
- ☐ c) Is the minor axis 0.5 inches?
- ☐ d) Is the ellipse positioned so that the long axis parallels the horizontal axis (is the ellipse short and fat)?

104 Form 2)

- ☐ a) Is the hyperbola a horizontal hyperbola (shaped like a backwards "C")?
- ☐ b) Is the right most part of the hyperbola at (10,15,0)?
- ☐ c) Do the ends of the hyperbola extend toward the negative x-direction 0.25 inches?

104 Form 3)

- ☐ a) Is the parabola a vertical parabola (shaped like a wide "U")?
- ☐ b) Is the parabola's vertex (lowest point) at (12,15,0)?





\_\_\_\_\_ c) Do the ends of the parabola extend 0.25 inches into the positive y-direction?

106 Form 11)

- \_\_\_\_\_ a) Does the linear planar curve look like a circular arc of radius 0.5 inches, centered at (14,14.75,0) and traced out from 0 to 180 degrees counterclockwise?
- \_\_\_\_\_ b) Is the linear planar curve made up of short straight segments combined to form a single entity?

106 Form 12)

\_\_\_\_\_ Does this three-segmented line stretch between (15.5,14.5,0), (15.75,15,1), (16,14.75,2), and (16.5,15.5,3)?

106 Form 20)

- \_\_\_\_\_ a) Are two points present at (18,15.25,0) and (18,14.75,0)?
- \_\_\_\_\_ b) Does a horizontal centerline extend between the approximate locations (18,15.4,0) and (18,14.6,0)? A centerline is a line of alternating short and long dashed segments.

106 Form 21)

- \_\_\_\_\_ a) Is a circle centered at (20,15,0) with a radius of 0.5 inches?
- \_\_\_\_\_ b) Are crosshairs present through the circle's center?
- \_\_\_\_\_ c) Does the horizontal crosshair extend from approximately (20.6,15,0) to (19.4,15,0)?
- \_\_\_\_\_ d) Does the vertical crosshair extend from approximately (20,15.6,0) to (20,14.4,0)?
- \_\_\_\_\_ e) Do these crosshairs act together as one entity (both selectable by one touch)?

106 Form 31)

- \_\_\_\_\_ a) Is a square shaped polygon present?
- \_\_\_\_\_ b) Is the polygon crosshatched with parallel line segments?
- \_\_\_\_\_ c) Is the crosshatch spacing 0.2 inches and angle 45 degrees?
- \_\_\_\_\_ d) Does the polygon act as a single entity (selectable by one touch)?
- \_\_\_\_\_ d) Does the crosshatching act as a single entity (selectable by one touch)?

106 Form 32)

- \_\_\_\_\_ a) Are two squares present, one smaller and within the other?
- \_\_\_\_\_ b) Is the area between the inner and outer squares crosshatched with parallel line segments in pairs with a gap between the pairs?
- \_\_\_\_\_ c) Is the pattern spacing 0.177 inches and angle 45 degrees?

\_\_\_\_\_ d) Does the crosshatching act as a single entity  
(selectable by one touch)?

106 Form 33)

- \_\_\_\_\_ a) Is a square present?  
\_\_\_\_\_ b) Is the square crosshatched with an alternating pattern  
of a solid line and a set of collinear dash segments?  
\_\_\_\_\_ c) Is the pattern spacing 0.167 inches and angle 45  
degrees?  
\_\_\_\_\_ d) Does the crosshatching act as a single entity  
(selectable by one touch)?

106 Form 34)

- \_\_\_\_\_ a) Is a polygon present that is composed of two  
perpendicular line segments and a convex arc connecting  
the unattached ends of the line segments?  
\_\_\_\_\_ b) Is the polygon crosshatched with parallel lines in  
quadruples with a gap between the groups?  
\_\_\_\_\_ c) Is the pattern spacing 0.1 inches and angle 45 degrees?  
\_\_\_\_\_ d) Does the crosshatching act as a single entity  
(selectable by one touch)?

106 Form 35)

- \_\_\_\_\_ a) Is a square present?  
\_\_\_\_\_ b) Is the square crosshatched with triples of parallel  
lines consisting of two solid lines and a set of  
collinear dash segments between them with a gap between  
triples?  
\_\_\_\_\_ c) Is the pattern spacing 0.2 inches and angle 45 degrees?  
\_\_\_\_\_ d) Does the crosshatching act as a single entity  
(selectable by one touch)?

106 Form 36)

- \_\_\_\_\_ a) Is a polygon present that is composed of four lines and  
one concave arc closing the polygon?  
\_\_\_\_\_ b) Is the polygon crosshatched with parallel sets of  
collinear dash segments?  
\_\_\_\_\_ c) Is the pattern spacing 0.167 inches and angle 45  
degrees?  
\_\_\_\_\_ d) Does the crosshatching act as a single entity  
(selectable by one touch)?

106 Form 37)

- \_\_\_\_\_ a) Is a square present?  
\_\_\_\_\_ b) Is the square crosshatched with two perpendicular sets  
of parallel lines?  
\_\_\_\_\_ c) Is the pattern spacing 0.177 inches and angle 45  
degrees?  
\_\_\_\_\_ d) Does the crosshatching act as a single entity  
(selectable by one touch)?

106 Form 38)

- \_\_\_\_\_ a) Is a polygon present that is composed of four lines and  
a concave shaped spline closing the polygon?

- \_\_\_\_\_ b) Is the polygon crosshatched with two perpendicular sets of lines with the principal set solid from edge to edge and the second set consisting of collinear dash segments alternating on the solid lines?
- \_\_\_\_\_ c) Is the pattern spacing 0.167 inches and angle 45 degrees?
- \_\_\_\_\_ d) Does the crosshatching act as a single entity (selectable by one touch)?

106 Form 40)

- \_\_\_\_\_ a) Is the lower left corner of the letter "A" at (17.75,13.25,0)?
- \_\_\_\_\_ b) Is "A"'s text height 0.5 and width 0.5 inches?
- \_\_\_\_\_ c) Are points present at (17.5,13.5,0) and (17.5,12.5,0)?
- \_\_\_\_\_ d) Does a linear dimension placed to the right of and below the letter "A" read "1.000"?
- \_\_\_\_\_ e) Is the upper witness line of the linear dimension visible between the approximate points (17.6,13.5,0) to (17.75,13.5,0) and (18.25,13.5,0) to (18.6,13.5,0)? In other words, does the witness line blank out as it goes through the letter "A"?
- \_\_\_\_\_ f) Is the lower witness line visible from approximately (17.6,12.5,0) to (18.6,12.5,0)?
- \_\_\_\_\_ g) Does the entire linear dimension (witness lines, leaders, and text) act as a single entity?

106 Form 63)

- \_\_\_\_\_ a) Is a rectangle present between the points (19.5,12.75,0), (19.5,13.5,0), (20.5,13.5,0), and (20.5,12.75,0)?
- \_\_\_\_\_ b) Is this rectangle a closed area (can it be filled by a pattern)?
- \_\_\_\_\_ c) Does this simple closed area act as a single entity (selectable by one touch)?

108 Form 0)

- \_\_\_\_\_ a) Is there a view present that is clipped by the planes  $x = 1$ ,  $x = 3$ ,  $y = 10$ , and  $y = 11.5$ ?
- \_\_\_\_\_ b) Is the view named "B"?
- \_\_\_\_\_ c) Are the two lines from (1.5,11,0) to (2,11.75,0) and from (2.5,11,0) to (2,11.75,0) present?
- \_\_\_\_\_ d) Are these lines clipped, therefore visible only between  $y = 11$  and  $y = 11.5$ ?

108 Form 1)

- \_\_\_\_\_ Is there a plane defined at  $z = 0$  that is bounded by a simple closed area (a square shaped figure) connecting the points (3.5,10.5,0), (4.5,10.5,0), (4.5,11.5,0), and (3.5,11.5,0)?

110)

- \_\_\_\_\_ Is a line present from (6,11.5,0) to (6,10.5,0)?

112)

- \_\_\_\_\_ Does the spline start at the upper left near (7.5,11.5,0), trace out toward the lower right, move toward the lower left to create a loop, and cross back over itself as it moves to the upper right near (8.5,11.5,0)? In other words, does the parametric spline curve visually resemble the spline on the N-entity plot?
- 114)
- \_\_\_\_\_ a) Did two parametric splines appear, one 0.75 inches in the y-direction and 1.0 inches in the z-direction above the other?
- \_\_\_\_\_ b) Is the area between the splines surfaced with a parametric spline surface?
- \_\_\_\_\_ c) Does the parametric spline surface visually resemble the surface on the N-entity plot?
- 116)
- \_\_\_\_\_ Is the point at (12,11,0)?
- 118 Form 0)
- \_\_\_\_\_ a) Does a line extend from (13.5,11.5,0) to (13.5,10.5,0)?
- \_\_\_\_\_ b) Is there a circular arc present through the points (14.5,11.5,0), (14.25,11,0), and (14.5,10.5,0)?
- \_\_\_\_\_ c) Is the area between the arc and the line surfaced with a ruled surface of equal relative arc length?
- \_\_\_\_\_ d) Does the surface visually resemble the plot?
- 118 Form 1)
- \_\_\_\_\_ a) Does a line extend from (15.5,11.5,0) to (15.5,10.5,0)?
- \_\_\_\_\_ b) Is there a circular arc present through the points (16.5,11.5,0), (16.25,11,0), and (16.5,10.5,0)?
- \_\_\_\_\_ c) Is the area between the arc and the line surfaced with a ruled surface of equal relative parametric values?
- \_\_\_\_\_ d) Does the surface visually resemble the plot?
- 120)
- \_\_\_\_\_ a) Does a line extend from (18,11.75,0) to (18,10.5,0)?
- \_\_\_\_\_ b) Is there an arc present through (18.5,11.5,0), (18.25,11.125,0), and (18.5,10.75,0)?
- \_\_\_\_\_ c) Is the arc revolved 360 degrees around the line to create a surface of revolution?
- \_\_\_\_\_ d) Does the surface visually resemble the plot?
- 122)
- \_\_\_\_\_ a) Does a line extend from (19.75,10.75,0) to (20,11,-1)?
- \_\_\_\_\_ b) Is there an arc present through (19.75,11,0), (20,11.25,0), and (20.25,11,0)?
- \_\_\_\_\_ c) Is the arc projected 1 inch into the negative z-direction along the vector path of the line to create a tabulated cylinder.
- \_\_\_\_\_ d) Does the cylinder visually resemble the plot?

124 Form 0)

- ☐ a) Did an arrow shaped figure appear?
- ☐ b) Does this arrow act as a subfigure (selectable by one touch)?
- ☐ c) Is the subfigure named "ARROW"?
- ☐ d) Does the arrow point left with the arrowhead tip at (1.5,9,0)?

124 Form 1)

- ☐ a) Did an arrow shaped figure appear?
- ☐ b) Does this arrow act as a subfigure (selectable by one touch)?
- ☐ c) Is the subfigure named "ARROW"?
- ☐ d) Does the arrow point right with the arrowhead tip at (4.5,9,0)?

126 Form 0)

- ☐ a) Does a rational b-spline curve pass through the points (5.5,9,0), (5.75,9.25,0), (6.25,9,0), and (6.5,9,0)?
- ☐ b) Is the rational b-spline curve of degree 5?
- ☐ c) Does the rational b-spline curve visually resemble the curve on the N-entity plot?

128 Form 0)

- ☐ a) Did two rational b-splines appear, one 0.75 inches in the y-direction and 1.0 inches in the z-direction above the other?
- ☐ b) Are the splines of degree 5?
- ☐ c) Is the area between the splines surfaced with a rational b-spline surface?
- ☐ d) Is the surface of degree 5?
- ☐ e) Does the rational b-spline surface visually resemble the RBS surface on the plot?

128 Form 2)

- ☐ a) Did two rational b-spline appear, both circular in shape and one positioned above the other?
- ☐ b) Are the splines of degree 7?
- ☐ c) Is the area between the splines surfaced with a rational b-spline right circular cylinder?
- ☐ d) Is the surface of degree 7?
- ☐ e) Does the rational b-spline right circular cylinder visually resemble the RBS right circular cylinder on the plot?

128 Form 3)

- ☐ a) Did two rational b-splines appear, both circular in shape, but one both above and smaller than the other?
- ☐ b) Are the splines of degree 7?
- ☐ c) Is the area between the splines surfaced with a rational b-spline cone?
- ☐ d) Is the surface of degree 7?
- ☐ e) Does the rational b-spline cone visually resemble the plot?

128 Form 4)

- ☐ a) Is a line present from (14,8.5,0) to (14,9.75,0)?
- ☐ b) Is a sphere shaped rational b-spline surface present?
- ☐ c) Is the surface of degree 5?
- ☐ d) Does the rational b-spline sphere visually resemble the RBS sphere on the plot?

128 Form 5)

- ☐ a) Is a line present from (16,9.5,0) to (16,8.5,0)?
- ☐ b) Is a torus or donut shaped rational b-spline surface present?
- ☐ c) Is the surface of degree 5?
- ☐ d) Does the rational b-spline torus visually resemble the RBS torus on the plot?

128 Form 9)

- ☐ a) Did two rational b-splines appear, one 0.75 inches in the y-direction and 1.0 inches in the z-direction above the other?
- ☐ b) Are the splines of degree 2?
- ☐ c) Is the area between the splines surfaced with a rational b-spline general quadratic surface?
- ☐ d) Is the surface of degree 2?
- ☐ e) Does the rational b-spline general quadratic surface visually resemble the RBS surface on the plot?

130)

- ☐ a) Is there a circular arc present through the points (19.5,8.75,0), (20,9.25,0), and (20.5,8.75,0)?
- ☐ b) Did a second circular arc appear?
- ☐ c) Is this second circular arc smaller by 0.25 inches in radius than the first arc?
- ☐ d) Is this second arc traced out from 0 to 180 degrees counterclockwise like the first?
- ☐ e) Is the second circular arc an offset of the first?

140)

- ☐ a) Is the ruled surface present that extends between the line from (1.5,7.44,0.34) to (1.5,6.5,0) and the arc that connects (2.5,7.44,0.34), (2.125,6.97,0.17), and (2.5,6.5,0)?
- ☐ b) Did a second surface appear, one that looks exactly like the first surface?
- ☐ c) Is this second surface an offset surface.
- ☐ d) Is this second surface offset by 1.0 inch into the screen?

142)

- ☐ a) Did two parametric splines appear, one 0.75 inches in the y-direction and 1.0 inches in the z-direction above the other?
- ☐ b) Is the area between the splines surfaced with a parametric spline surface?

- \_\_\_\_\_ c) Did a spline appear on the surface to represent a circle projected upon this parametric spline surface?
- \_\_\_\_\_ d) The projected circle should not appear; is it blanked?

144)

- \_\_\_\_\_ a) Did two parametric splines appear, one 0.75 inches in the y-direction and 1.0 inches in the z-direction above the other?
- \_\_\_\_\_ b) Is the area between the splines surfaced with a parametric spline surface?
- \_\_\_\_\_ c) Did a spline appear on the surface to represent a circle projected upon this parametric spline surface?
- \_\_\_\_\_ d) The projected circle should not appear; is it blanked?
- \_\_\_\_\_ e) Is the parametric spline surface trimmed back to and enclosed in the spline?

202)

- \_\_\_\_\_ a) Is a line present from (7.5,7,0) to (7.25,6.75,0)?
- \_\_\_\_\_ b) Is a line present from (7.25,6.75,0) to (7.5,6.75,0)?
- \_\_\_\_\_ c) Is the angle that these two lines create dimensioned with an angular dimension?
- \_\_\_\_\_ d) Is the angular dimension composed of two witness lines, two leader arrows, and a text block?
- \_\_\_\_\_ e) Do the two witness lines, two leaders, and text block act as a single entity (selectable by one touch)?
- \_\_\_\_\_ f) Does the text say "45.00°"?
- \_\_\_\_\_ g) Is the lower left corner of the text block approximately at (7.9,7.1,0)?
- \_\_\_\_\_ h) Is the text height 0.156 inches?
- \_\_\_\_\_ i) Are the arrowheads the IGES-defined triangle types?
- \_\_\_\_\_ j) Do both arrows point from the text toward the witness lines?
- \_\_\_\_\_ k) Do the two witness lines extend from approximately (7.6,7.1,0) to (8.2,7.7,0) and from (7.6,6.75,0) to (8.6,6.75,0)?

206)

- \_\_\_\_\_ a) Is a circle of diameter 0.5 present and centered at (9.5,7,0)?
- \_\_\_\_\_ b) Is the circle dimensioned with a diameter dimension?
- \_\_\_\_\_ c) Is the diameter dimension composed of two leader arrows and a text block?
- \_\_\_\_\_ d) Do the two leaders and the text block act as a single entity (selectable by one touch)?
- \_\_\_\_\_ e) Does the text say " $\phi$ .500"?
- \_\_\_\_\_ f) Is the lower left corner of the text block approximately at (9.9,7.3,0)?
- \_\_\_\_\_ g) Is the text height 0.156 inches?
- \_\_\_\_\_ h) Are the arrowheads the IGES-defined triangle types?
- \_\_\_\_\_ i) Do both arrowheads point toward the inside of the circle?
- \_\_\_\_\_ j) Are the arrowheads 0.15 inches high and 0.05 inches wide?



210)

- ☐ a) Is a point present at (11.5,6.75,0)?
- ☐ b) Is this point labeled?
- ☐ c) Is the label composed of a leader and a text block?
- ☐ d) Do the leader and the text block act as a single entity (selectable by one touch)?
- ☐ e) Does the text block say "LABEL"?
- ☐ f) Is the lower left corner of the text block at (11.8,7.2,0)?
- ☐ g) Is the text height 0.156 inches?
- ☐ h) Is the leader a two-segmented leader?
- ☐ i) Is the leader's arrowhead at (11.5,6.75,0), first segment end at approximately (11.46,7.25,0), and second segment end at (11.75,7.25,0)?
- ☐ j) Is the arrowhead the IGES-defined triangle type?

212 Form 0)

- ☐ a) Does the lower left corner of the horizontal text block "SIMPLE" reside at (13.5,7.125,0)?
- ☐ b) Does a second text string also say "SIMPLE"?
- ☐ c) Is this second text string in the vertical orientation?
- ☐ d) Are the letters of this second text string slanted 30 degrees clockwise from the vertical axis?
- ☐ e) Is the lower left corner of the letter "S" at (14.5,7.5,0)?
- ☐ f) Is the text height for both text strings 0.125 inches?

212 Form 1)

- ☐ a) Does the text say "DUAL STACK"?
- ☐ b) Is the lower left corner of the text "DUAL" at (15.5,7.125,0)?
- ☐ c) Is the text "STACK" left justified directly below "DUAL"?
- ☐ d) Is the text height 0.125 inches?

212 Form 2)

- ☐ a) Do the first and second letters say "IM" and the sixth through eighth say "DED"?
- ☐ b) Do the third through the fifth letters say " $\div \Delta \geq$ "?
- ☐ c) Is the lower left corner of the text block at (17.5,7.125,0)?
- ☐ d) Is the text height 0.125 inches?

212 Form 3)

- ☐ a) Are the words of the general note "S" and "SUPER"?
- ☐ b) Is the word "SUPER" a superscript of the letter "S"?
- ☐ c) Is the lower left corner of the letter "S" at (19.5,7.125,0)?
- ☐ d) Is the text height 0.125 inches?

212 Form 4)

- ☐ a) Are the words of the general note "S" and "SUB"?
- ☐ b) Is the word "SUB" a subscript of the letter "S"?

- \_\_\_\_\_ c) Is the lower left corner of the letter "S" at (1.5,5.125,0)?
- \_\_\_\_\_ d) Is the text height 0.125 inches?

212 Form 5)

- \_\_\_\_\_ a) Are the words of the general note "S", "SUPER", and "SUB"?
- \_\_\_\_\_ b) Is the word "SUPER" a superscript of "S"?
- \_\_\_\_\_ c) Is the word "SUB" a subscript of "S"?
- \_\_\_\_\_ d) Is the lower left corner of the letter "S" at (3.5,5.125,0)?
- \_\_\_\_\_ e) Is the text height 0.125 inches?

212 Form 6)

- \_\_\_\_\_ a) Are the words of the general note "M", "STACK", and "LEFT"?
- \_\_\_\_\_ b) Are the words stacked one below the other ("M" then "STACK" then "LEFT")?
- \_\_\_\_\_ c) Are the words left justified to a common margin?
- \_\_\_\_\_ d) Is the lower left corner of the letter "M" at (5.5,5.25,0)?
- \_\_\_\_\_ e) Is the text height 0.125 inches?

212 Form 7)

- \_\_\_\_\_ a) Are the words of the general note "M", "STACK", and "CENTER"?
- \_\_\_\_\_ b) Are the words stacked one below the other?
- \_\_\_\_\_ c) Are the words center justified?
- \_\_\_\_\_ d) Is the lower center location of the letter "M" at (8,5.25,0)?
- \_\_\_\_\_ e) Is the text height 0.125 inches?

212 Form 8)

- \_\_\_\_\_ a) Are the words of the general note "M", "STACK", and "RIGHT"?
- \_\_\_\_\_ b) Are the words stacked one below the other?
- \_\_\_\_\_ c) Are the words right justified to a common margin?
- \_\_\_\_\_ d) Is the lower right corner of the letter "M" at (10.5,5.25,0)?
- \_\_\_\_\_ e) Is the text height 0.125 inches?

212 Form 100)

- \_\_\_\_\_ a) Are the words "S", "----", "FRAC", and "TION" present?
- \_\_\_\_\_ b) Is the lower left corner of the letter "S" at approximately (11.5,5.1,0)?
- \_\_\_\_\_ c) Do the four dashes follow, after one space, the letter "S"?
- \_\_\_\_\_ d) Does the text "FRAC" appear to be a superscript of "S"?
- \_\_\_\_\_ e) Is "FRAC" located directly above the dashes?
- \_\_\_\_\_ f) Does the text "TION" appear to be a subscript of "S"?
- \_\_\_\_\_ g) Is "TION" located directly below the dashes?

212 Form 101)

- \_\_\_\_\_ a) Are the words "DUAL", "---", "TO", "P", "STACK",

- ", "BOT", and "TOM" present?
- \_\_\_\_\_ b) Is the lower left corner of "DUAL" at approximately (13.5,5.3,0)?
  - \_\_\_\_\_ c) Do the three dashes follow, after two spaces, the word "DUAL"?
  - \_\_\_\_\_ d) Does the text "TO" appear to be a superscript of "DUAL"?
  - \_\_\_\_\_ e) Is "TO" located directly above the dashes?
  - \_\_\_\_\_ f) Does the text "P" appear to be a subscript of "DUAL"?
  - \_\_\_\_\_ g) Is "P" located directly below the dashes?
  - \_\_\_\_\_ h) Is the word "STACK" roughly three lines below and left justified to "DUAL"?
  - \_\_\_\_\_ i) Do the five dashes follow, after one space, the word "STACK"?
  - \_\_\_\_\_ j) Does the text "BOT" appear to be a superscript of "STACK"?
  - \_\_\_\_\_ k) Is "BOT" located directly above the dashes?
  - \_\_\_\_\_ l) Does the text "TOM" appear to be a subscript of "STACK"?
  - \_\_\_\_\_ m) Is "TOM" located directly below the dashes?
  - \_\_\_\_\_ n) Is the text height 0.125 inches?

212 Form 102)

- \_\_\_\_\_ a) Are the words "IM", "-----", "BED", "DED", "≠", "FR", "-----", "ACT", and "ION" present?
- \_\_\_\_\_ b) Is the lower left corner of "IM" at approximately (15.1,5.1,0)?
- \_\_\_\_\_ c) Do the five dashes follow, after one space, the text string "IM"?
- \_\_\_\_\_ d) Does the text "BED" appear to be a superscript of "IM"?
- \_\_\_\_\_ e) Is "BED" located directly above the dashes?
- \_\_\_\_\_ f) Does the text "DED" appear to be a subscript of "IM"?
- \_\_\_\_\_ g) Is "DED" located directly below the dashes?
- \_\_\_\_\_ h) Is there a space after the fifth dash and then the character "≠"?
- \_\_\_\_\_ i) Is there a space after "≠" and then the text "FR"?
- \_\_\_\_\_ j) Do the four dashes follow, after one space, the text "FR"?
- \_\_\_\_\_ k) Does the text "ACT" appear to be a superscript of "FR"?
- \_\_\_\_\_ l) Is "ACT" located directly above the dashes?
- \_\_\_\_\_ m) Does the text "ION" appear to be a subscript of "FR"?
- \_\_\_\_\_ n) Is "ION" located directly below the dashes?
- \_\_\_\_\_ o) Is the text height 0.125 inches?

212 Form 105)

- \_\_\_\_\_ a) Are the words "FR", "-----", "SUP", "SUB", "T", "----", "O", "P", "BO", "-----", "TT", "OM" present?
- \_\_\_\_\_ b) Is the lower left corner of "FR" at approximately (17.1,5.1,0)?
- \_\_\_\_\_ c) Do the five dashes follow, after one space, the text "FR"?
- \_\_\_\_\_ d) Does the text "SUP" appear to be a superscript of "FR"?
- \_\_\_\_\_ e) Is "SUP" located directly above the dashes?
- \_\_\_\_\_ f) Does the text "SUB" appear to be a subscript of "FR"?

- ☐ g) Is "SUB" located directly below the dashes?
- ☐ h) Does the letter "T" appear to be a superscript of the entire first fraction?
- ☐ i) Do the three dashes follow, after one space, the letter "T"?
- ☐ j) Does "O" appear to be a superscript to "T"?
- ☐ k) Is "O" located directly above the dashes?
- ☐ l) Does "P" appear to be a subscript to "T"?
- ☐ m) Is "P" located directly below the dashes?
- ☐ n) Does "BO" appear to be a subscript of the entire first fraction?
- ☐ o) Do the four dashes follow, after one space, the text "BO"?
- ☐ p) Does the text "TT" appear to be a superscript of "BO"?
- ☐ q) Is "TT" located directly above the dashes?
- ☐ r) Does the text "OM" appear to be a subscript of "BO"?
- ☐ s) Is "OM" located directly below the dashes?
- ☐ t) Is the text height 0.125 inches?

214 Form 1)

- ☐ a) Is the leader's tail at (20.5,5,0)?
- ☐ b) Is the leader's head at (19.5,5,0)?
- ☐ c) Is the arrowhead the IGES-defined wedge type?
- ☐ d) Is the arrowhead height 0.15 inches?
- ☐ e) Is the arrowhead width 0.05 inches?

214 Form 2)

- ☐ a) Is the leader's tail at (2.5,3,0)?
- ☐ b) Is the leader's head at (1.5,3,0)?
- ☐ c) Is the arrowhead the IGES-defined triangle type?
- ☐ d) Is the arrowhead height 0.15 inches?
- ☐ e) Is the arrowhead width 0.05 inches?

214 Form 3)

- ☐ a) Is the leader's tail at (4.5,3,0)?
- ☐ b) Is the leader's head at (3.5,3,0)?
- ☐ c) Is the arrowhead the IGES-defined filled triangle type?
- ☐ d) Is the arrowhead height 0.15 inches?
- ☐ e) Is the arrowhead width 0.05 inches?

214 Form 4)

- ☐ a) Is the leader's tail at (6.5,3,0)?
- ☐ b) Is the leader's head at (5.5,3,0)?
- ☐ c) Is there no arrowhead?

214 Form 5)

- ☐ a) Is the leader's tail at (8.5,3,0)?
- ☐ b) Is the leader's head at (7.5,3,0)?
- ☐ c) Is the arrowhead the IGES-defined circle type?
- ☐ d) Is the arrowhead height 0.1 inches?
- ☐ e) Is the arrowhead width 0.1 inches?

214 Form 6)

- ☐ a) Is the leader's tail at (10.5,3,0)?

- ☐ b) Is the leader's head at (9.5,3,0)?
- ☐ c) Is the arrowhead the IGES-defined filled circle type?
- ☐ d) Is the arrowhead height 0.1 inches?
- ☐ e) Is the arrowhead width 0.1 inches?

214 Form 7)

- ☐ a) Is the leader's tail at (12.5,3,0)?
- ☐ b) Is the leader's head at (11.5,3,0)?
- ☐ c) Is the arrowhead the IGES-defined rectangle type?
- ☐ d) Is the arrowhead height 0.1 inches?
- ☐ e) Is the arrowhead width 0.1 inches?

214 Form 8)

- ☐ a) Is the leader's tail at (14.5,3,0)?
- ☐ b) Is the leader's head at (13.5,3,0)?
- ☐ c) Is the arrowhead the IGES-defined filled rectangle type?
- ☐ d) Is the arrowhead height 0.1 inches?
- ☐ e) Is the arrowhead width 0.1 inches?

214 Form 9)

- ☐ a) Is the leader's tail at (16.5,3,0)?
- ☐ b) Is the leader's head at (15.5,3,0)?
- ☐ c) Is the arrowhead the IGES-defined slash type?
- ☐ d) Is the arrowhead height 0.1 inches?
- ☐ e) Is the arrowhead width 0.1 inches?

214 Form 10)

- ☐ a) Is the leader's tail at (18.5,3,0)?
- ☐ b) Is the leader's head at (17.5,3,0)?
- ☐ c) Is the arrowhead the IGES-defined integral sign type?
- ☐ d) Is the arrowhead height 0.1 inches?
- ☐ e) Is the arrowhead width 0.1 inches?

214 Form 11)

- ☐ a) Is the leader's tail at (20.5,3,0)?
- ☐ b) Is the leader's head at (19.5,3,0)?
- ☐ c) Is the arrowhead the IGES-defined open triangle type?
- ☐ d) Is the arrowhead height 0.15 inches?
- ☐ e) Is the arrowhead width 0.05 inches?

216)

- ☐ a) Are there two points present: one at (1.5,0.5,0) and one at (2.5,0.5,0)?
- ☐ b) Is the space between these two points dimensioned with a linear dimension?
- ☐ c) Is the linear dimension composed of two witness lines, two leader arrows, and a text block?
- ☐ d) Do the two witness lines, two leaders, and text block act as a single entity (selectable by one touch)?
- ☐ e) Does the text say "1.000"?
- ☐ f) Is the lower left corner of the text block approximately at (1.64,1.17,0)?
- ☐ g) Is the text height 0.156 inches?

- \_\_\_\_\_ h) Are the arrowheads of the IGES-defined triangle type?
- \_\_\_\_\_ i) Do both arrows point toward the text from the outside of the witness lines?

218)

- \_\_\_\_\_ a) Are there two points present: one at (3.5,0.5,0) and one at (4.25,0.5,0)?
- \_\_\_\_\_ b) Is the right point ordinately dimensioned from the left point?
- \_\_\_\_\_ c) Is the ordinate dimension composed of two leaders and two text blocks?
- \_\_\_\_\_ d) Do the two leaders and two text blocks act as a single entity (selectable by one touch)?
- \_\_\_\_\_ e) Does the text above the left point say ".000"?
- \_\_\_\_\_ f) Does the text above the right point say ".750"?
- \_\_\_\_\_ g) Is the lower left corner of the left text block before rotation approximately at (3.58,1.19,0)?
- \_\_\_\_\_ h) Is the lower left corner of the right text block before rotation approximately at (4.33,1.19,0)?
- \_\_\_\_\_ i) Is the text height 0.156 inches?
- \_\_\_\_\_ j) Are there no arrowheads on the leaders?
- \_\_\_\_\_ k) Do the leaders extend from locations just above the points to the text blocks?

220)

- \_\_\_\_\_ a) Is there a point present at (6,0.5,0)?
- \_\_\_\_\_ b) Is this point dimensioned?
- \_\_\_\_\_ c) Is the point dimension composed of one leader, one circle, and one text block?
- \_\_\_\_\_ d) Do the leader, circle, and text block act as a single entity (selectable by one touch)?
- \_\_\_\_\_ e) Does the text say ".000"?
- \_\_\_\_\_ f) Is the lower left corner of the text block approximately at (5.73,1.33,0)?
- \_\_\_\_\_ g) Is the text height 0.156 inches?
- \_\_\_\_\_ h) Is there no arrowhead on the leader?
- \_\_\_\_\_ i) Is the text surrounded by a circle?
- \_\_\_\_\_ j) Does the leader extend from a location just above the point to the bottom of the circle?

222)

- \_\_\_\_\_ a) Is a circular arc present centered at (7.25,0.5,0) with a radius of 0.5 inches and traced out from 0 to 90 degrees counterclockwise?
- \_\_\_\_\_ b) Is this arc dimensioned with a radius dimension?
- \_\_\_\_\_ c) Is this radius dimension composed of a leader and a text block?
- \_\_\_\_\_ d) Do the leader and the text block act as a single entity (selectable by one touch)?
- \_\_\_\_\_ d) Does the text block say "R .500"?
- \_\_\_\_\_ e) Is the lower left corner of the text block at (7.85,1.42,0)?
- \_\_\_\_\_ f) Is the text height 0.156 inches?
- \_\_\_\_\_ g) Is the leader a two-segmented leader?

- \_\_\_\_\_ h) Is the arrowhead of the IGES-defined triangle type?
- \_\_\_\_\_ i) Does the arrowhead point toward the outside of the arc?

228 Form 0)

- \_\_\_\_\_ a) Is a diamond shaped closed figure present?
- \_\_\_\_\_ b) Does a line horizontally cut in half this diamond shaped figure?
- \_\_\_\_\_ c) Does a piece of text saying "AB" occupy the lower half of this diamond shaped figure?
- \_\_\_\_\_ d) Do the closed figure, line, and text block act as a single general symbol (all three entities selectable by one touch)?
- \_\_\_\_\_ e) Is the lower left corner of the text block at (9.875,0.75,0)?
- \_\_\_\_\_ f) Is the text height 0.156 inches?

228 Form 1)

- \_\_\_\_\_ a) Is a rectangular shaped closed figure present?
- \_\_\_\_\_ b) Is the text "-C-" present inside of the rectangle?
- \_\_\_\_\_ c) Do the closed figure and the text act as a single datum feature symbol (both entities selectable by one touch)?
- \_\_\_\_\_ d) Is the lower left corner of the text block at (11.83,1.08,0)?
- \_\_\_\_\_ e) Is the text height 0.156 inches?

228 Form 2)

- \_\_\_\_\_ a) Is a circle present?
- \_\_\_\_\_ b) Does a line horizontally cut this circle in half?
- \_\_\_\_\_ c) Does the text "A2" occupy the lower half of this circle?
- \_\_\_\_\_ d) Is the lower left corner of the text block at (14.125,1,0)?
- \_\_\_\_\_ e) Is the text height 0.156 inches?
- \_\_\_\_\_ f) Does an arrow point from the lower left side of the circle to (13.625,0.625,0)?
- \_\_\_\_\_ g) Do the circle, line, text, and arrow act as a single target symbol (all four entities selectable by one touch)?

228 Form 3)

- \_\_\_\_\_ a) Is a rectangular frame present?
- \_\_\_\_\_ b) Does a text block containing a perpendicular symbol, a frame divider, and the text ".02" occupy the rectangular frame?
- \_\_\_\_\_ c) Is the lower left corner of the text block at (15.58,1.08,0)?
- \_\_\_\_\_ d) Is the text height 0.156 inches?
- \_\_\_\_\_ e) Do the rectangle and text act as a single feature control frame (selectable by one touch)?

230)

- \_\_\_\_\_ a) Do four lines form a square?
- \_\_\_\_\_ b) Is the square crosshatched with solid parallel line segments from edge to edge?

- \_\_\_\_\_ c) Is the crosshatching spacing 0.2 inches?  
\_\_\_\_\_ d) Is the crosshatching angled at 45 degrees?

Grid Lines)

- \_\_\_\_\_ a) Are there 11 vertical grid lines?  
\_\_\_\_\_ b) Are there 9 horizontal grid lines?

Entity Identifiers)

- \_\_\_\_\_ Is every entity identified by a name and an IGES number placed beneath the entity within the grid box?

Title Block)

- \_\_\_\_\_ Does the title block in the lower right hand grid box say,  
                  "CALS TEST NETWORK  
                  MIL-D-28000  
                  CLASS II  
                  REFERENCE DRAWING  
                  N-ENTITY"?



## Incident Report

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## Incident Report

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## Incident Report

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Attachment H

L-bracket Evaluation Script

## L-bracket Evaluation Script

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Answer the following questions:

Views)

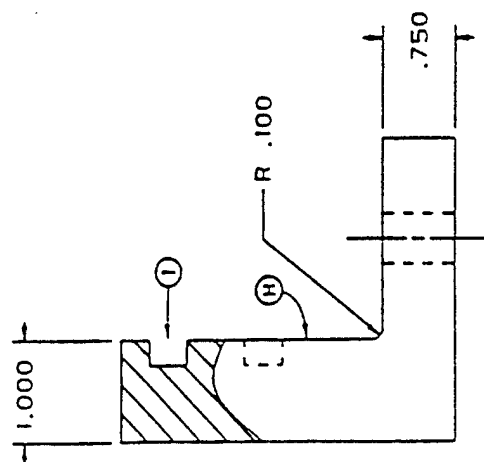
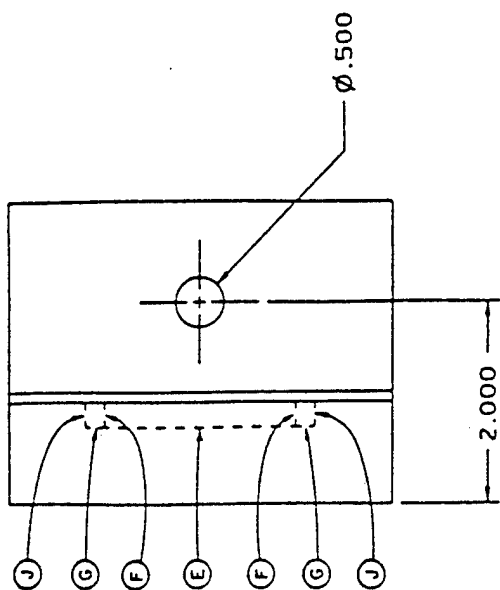
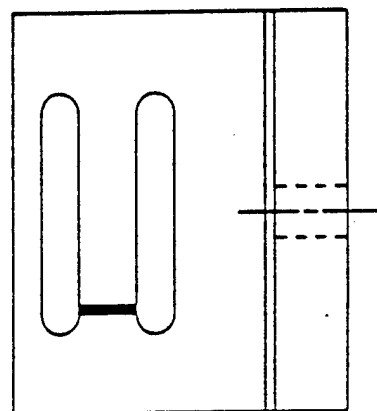
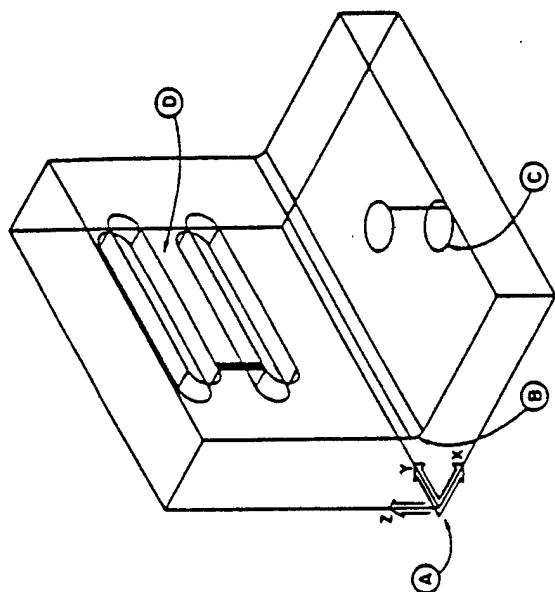
- ☐ a) Is the lower left corner of the top view at the drawing location (3,10)?
- ☐ b) Is the lower left corner of the front view at the drawing location (3,3)?
- ☐ c) Is the lower left corner of the side view at the drawing location (12,3)?
- ☐ d) Is the lower left corner of the isometric view at the drawing location (12,10)?

Dimensions)

- ☐ a) Is the diameter dimension ( $\phi$ .500) readable and does it point at the circle on the top view?
- ☐ b) Is the radius dimension (R .100) readable and does it point at the fillet on the front view?
- ☐ c) Is the linear dimension (2.000) readable and does it dimension the distance between the circle center and the left side of the l-bracket on the top view?
- ☐ d) Is the linear dimension (1.000) readable and does it dimension the width of the l-bracket's vertical leg on the front view?
- ☐ e) Is the linear dimension (.750) readable and does it dimension the width of the l-bracket's horizontal leg on the front view?

Dashed lines)

- ☐ a) On the top view, are the two horizontal hidden slot lines dashed that are labeled "J" on the A-sized, L-bracket plot attached to this script? Do the lines have 0.1 inch long dashes and 0.1 inch long spaces?
- ☐ b) On the top view, are the remaining three hidden slot lines (labeled by "E+G" and "F") dashed?
- ☐ c) If the answer to a) was yes, and if the answer to b) was no, blank the whole top view momentarily to clearly see the font of the "E+G" and "F" lines. Are they now dashed?
- ☐ d) On the front view, is the vertical hidden slot line dashed? Again, if the answer to a) was yes, blank the front view to clearly see the font of this line. Is it now dashed?
- ☐ e) On the front view, are the two horizontal hidden slot lines dashed. Do the lines have 0.1 inch long dashes and 0.1 inch long spaces? If they are not dashed, blank the whole front view to clearly see the font of these lines. Are they now dashed?
- ☐ f) On the front view, is the line representing the left side of the through-hole dashed?



- \_\_\_\_\_ g) On the front view, is the line representing the right side of the through-hole dashed? If not, blank the view to clearly see the line font.
- \_\_\_\_\_ h) On the side view, are both lines representing both sides of the through-hole dashed?

Subfigure)

- \_\_\_\_\_ a) Does the lower slot act as a subfigure (e.g. selectable by one touch)?
- \_\_\_\_\_ b) Is the subfigure named "SUBFIG"?

Color)

- \_\_\_\_\_ a) Is the crosshatching close to the color of magenta?
- \_\_\_\_\_ b) Are all the dimensions yellow?
- \_\_\_\_\_ c) Are the two circles and the line which comprise the through-hole magenta in the isometric view?
- \_\_\_\_\_ d) Are the two circles and the line which comprise the through-hole green in the top view?
- \_\_\_\_\_ e) Are the rest of the entities the default color of the system?

Ordered group)

- \_\_\_\_\_ Does the upper slot act as an ordered group (e.g. the entire group selectable by one touch)?

Crosshatching)

- \_\_\_\_\_ Did crosshatching appear on the vertical leg of the 1-bracket to depict the exposed interior of the 1-bracket?

Centerlines)

- \_\_\_\_\_ a) Did a crosshair (one horizontal and one vertical centerline) appear on the circle in the top view?
- \_\_\_\_\_ b) Does this crosshair act as a single entity?
- \_\_\_\_\_ c) Did a centerline appear on the front view to depict the center of the through-hole?
- \_\_\_\_\_ d) Did a centerline appear on the side view to depict the center of the through-hole?

Level definitions)

- \_\_\_\_\_ a) Are all the model entities on level one?
- \_\_\_\_\_ b) Are all the dimension entities on level two?
- \_\_\_\_\_ c) Are all the other detailing entities (all dashed lines, crosshatching, centerlines, the spline, border lines, title block lines, and the title block text) on level three?
- \_\_\_\_\_ d) Is the lower slot (subfigure) on level four?
- \_\_\_\_\_ e) Is the definition of the levels apparent?

Views visible)

- \_\_\_\_\_ a) Is the cut-out pointed to by "I" really cut out as shown on the plot?

Spline)

\_\_\_\_\_ Did the parametric spline appear properly on the front view exposing the interior of the l-bracket?

Line widening)

- \_\_\_\_\_ a) Is the line connecting the two slots widened?
- \_\_\_\_\_ b) Is it widened to 0.1 inch?
- \_\_\_\_\_ c) Does the widened line have squared corners?
- \_\_\_\_\_ d) Does the widened line not extent beyond the bottom line of the top slot and the top line of the bottom slot?

Border)

- \_\_\_\_\_ a) Did the four lines bordering the drawing appear?
- \_\_\_\_\_ b) Did the two lines bordering the title block appear?

Title block)

\_\_\_\_\_ Did the title block appear as centered text and read  
"CALS TEST NETWORK  
MIL-D-28000  
CLASS II  
REFERENCE DRAWING  
L-BRACKET"?

Drawing)

- \_\_\_\_\_ a) Is the drawing named "LBRACKT"?
- \_\_\_\_\_ b) Are the drawing units in inches?
- \_\_\_\_\_ c) Is the drawing C-sized?

General)

\_\_\_\_\_ Does the drawing look generally similar to the provided L-bracket reference drawing plot?



## Incident Report

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## Incident Report

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Attachment I

N-entity IGES File Printout

[illegible][illegible]



110	40	0	1	0	0	0	0	0	0	1D	71
110	0	5	1	0	0	0	0	0	0	D	72
110	41	0	1	0	0	0	0	0	0	1D	73
110	0	5	1	0	0	0	0	0	0	D	74
100	42	0	1	0	0	0	0	0	0	1D	75
100	0	5	1	0	0	0	0	0	0	D	76
116	43	0	0	0	0	0	0	0	0	10001D	77
116	0	5	1	0	0	0	0	0	0	D	78
110	44	0	1	0	0	0	0	0	0	10001D	79
110	0	5	1	0	0	0	0	0	0	D	80
100	45	0	1	0	0	0	0	0	0	10001D	81
100	0	5	1	0	0	0	0	0	0	D	82
124	46	0	0	0	0	0	0	0	0	1D	83
124	0	0	1	0	0	0	0	0	0	D	84
104	47	0	1	0	0	0	0	0	0	1D	85
104	0	5	2	1	0	0	0	0	0	D	86
116	49	0	0	0	0	0	0	0	0	1D	87
116	0	5	1	0	0	0	0	0	0	D	88
116	50	0	0	0	0	0	0	0	0	1D	89
116	0	5	1	0	0	0	0	0	0	D	90
100	51	0	1	0	0	0	0	0	0	1D	91
100	0	5	1	0	0	0	0	0	0	D	92
0	52	0	1	0	0	0	0	0	0	1D	93
0	0	5	1	0	0	0	0	0	0	D	94
110	53	0	1	0	0	0	0	0	0	1D	95
110	0	5	1	0	0	0	0	0	0	D	96
110	54	0	1	0	0	0	0	0	0	1D	97
110	0	5	1	0	0	0	0	0	0	D	98
110	55	0	1	0	0	0	0	0	0	1D	99
110	0	5	1	0	0	0	0	0	0	D	100
110	56	0	1	0	0	0	0	0	0	1D	101
110	0	5	1	0	0	0	0	0	0	D	102
110	57	0	1	0	0	0	0	0	0	1D	103
110	0	5	1	0	0	0	0	0	0	D	104
110	58	0	1	0	0	0	0	0	0	1D	105
110	0	5	1	0	0	0	0	0	0	D	106
110	59	0	1	0	0	0	0	0	0	1D	107
110	0	5	1	0	0	0	0	0	0	D	108
110	60	0	1	0	0	0	0	0	0	1D	109
110	0	5	1	0	0	0	0	0	0	D	110
110	61	0	1	0	0	0	0	0	0	1D	111
110	0	5	1	0	0	0	0	0	0	D	112
110	62	0	1	0	0	0	0	0	0	1D	113
110	0	5	1	0	0	0	0	0	0	D	114
110	63	0	1	0	0	0	0	0	0	1D	115
110	0	5	1	0	0	0	0	0	0	D	116
110	64	0	1	0	0	0	0	0	0	1D	117
110	0	5	1	0	0	0	0	0	0	D	118
110	65	0	1	0	0	0	0	0	0	1D	119
110	0	5	1	0	0	0	0	0	0	D	120
110	66	0	1	0	0	0	0	0	0	1D	121
110	0	5	1	0	0	0	0	0	0	D	122
110	67	0	1	0	0	0	0	0	0	1D	123
110	0	5	1	0	0	0	0	0	0	D	124
110	68	0	1	0	0	0	0	0	0	1D	125

110	0	5	1	0	0	0	0	0	D	126
110	69	0	1	0	0	0	0	0	1D	127
110	0	5	1	0	0	0	0	0	D	128
110	70	0	1	0	0	0	0	0	1D	129
110	0	5	1	0	0	0	0	0	D	130
110	71	0	1	0	0	0	0	0	1D	131
110	0	5	1	0	0	0	0	0	D	132
110	72	0	1	0	0	0	0	0	1D	133
110	0	5	1	0	0	0	0	0	D	134
110	73	0	1	0	0	0	0	0	1D	135
110	0	5	1	0	0	0	0	0	D	136
110	74	0	1	0	0	0	0	0	1D	137
110	0	5	1	0	0	0	0	0	D	138
110	75	0	1	0	0	0	0	0	1D	139
110	0	5	1	0	0	0	0	0	D	140
110	76	0	1	0	0	0	0	0	1D	141
110	0	5	1	0	0	0	0	0	D	142
110	77	0	1	0	0	0	0	0	1D	143
110	0	5	1	0	0	0	0	0	D	144
110	78	0	1	0	0	0	0	0	1D	145
110	0	5	1	0	0	0	0	0	D	146
110	79	0	1	0	0	0	0	0	1D	147
110	0	5	1	0	0	0	0	0	D	148
110	80	0	1	0	0	0	0	0	1D	149
110	0	5	1	0	0	0	0	0	D	150
110	81	0	1	0	0	0	0	0	1D	151
110	0	5	1	0	0	0	0	0	D	152
110	82	0	1	0	0	0	0	0	1D	153
110	0	5	1	0	0	0	0	0	D	154
100	83	0	1	0	0	0	0	0	1D	155
100	0	5	1	0	0	0	0	0	D	156
100	84	0	1	0	0	0	0	0	1D	157
100	0	5	1	0	0	0	0	0	D	158
106	85	0	0	0	0	0	0	0	101D	159
106	0	5	2	21	0	0	0	0	D	160
106	87	0	0	0	0	0	0	0	101D	161
106	0	5	2	20	0	0	0	0	D	162
0	89	0	0	0	0	0	0	0	101D	163
0	0	5	2	0	0	0	0	0	D	164
116	91	0	0	0	0	0	0	0	1D	165
116	0	5	1	0	0	0	0	0	D	166
116	92	0	0	0	0	0	0	0	1D	167
116	0	5	1	0	0	0	0	0	D	168
106	93	0	1	0	0	0	0	0	20001D	169
106	0	5	1	0	0	0	0	0	D	170
108	94	0	1	0	0	0	0	0	1D	171
108	0	5	1	1	0	0	0	0	D	172
110	95	0	1	0	0	0	0	0	1D	173
110	0	5	1	0	0	0	0	0	D	174
116	96	0	0	0	0	0	0	0	1D	175
116	0	5	1	0	0	0	0	0	D	176
110	97	0	1	0	0	0	0	0	20001D	177
110	0	5	1	0	0	0	0	0	D	178
110	98	0	1	0	0	0	0	0	20001D	179
110	0	5	1	0	0	0	0	0	D	180

110	99	0	1	0	0	0	0	0	20001D	181
110	0	5	1	0	0	0	0	0	D	182
110	100	0	1	0	0	0	0	0	20001D	183
110	0	5	1	0	0	0	0	0	D	184
100	101	0	1	0	0	0	0	0	1D	185
100	0	5	1	0	0	0	0	0	D	186
116	102	0	0	0	0	0	0	0	1D	187
116	0	5	1	0	0	0	0	0	D	188
116	103	0	0	0	0	0	0	0	1D	189
116	0	5	1	0	0	0	0	0	D	190
116	104	0	0	0	0	0	0	0	1D	191
116	0	5	1	0	0	0	0	0	D	192
116	105	0	0	0	0	0	0	0	1D	193
116	0	5	1	0	0	0	0	0	D	194
110	106	0	1	0	0	0	0	0	1D	195
110	0	5	1	0	0	0	0	0	D	196
214	107	0	1	0	0	0	0	0	101D	197
214	0	5	1	7	0	0	0	0	D	198
214	108	0	1	0	0	0	0	0	101D	199
214	0	5	1	11	0	0	0	0	D	200
116	109	0	0	0	0	0	0	0	1D	201
116	0	5	1	0	0	0	0	0	D	202
100	110	0	1	0	0	0	0	0	1D	203
100	0	5	1	0	0	0	0	0	D	204
110	111	0	1	0	0	0	0	0	1D	205
110	0	5	1	0	0	0	0	0	D	206
100	112	0	1	0	0	0	0	0	10101D	207
100	0	5	1	0	0	0	0	0	D	208
110	113	0	1	0	0	0	0	0	10101D	209
110	0	5	1	0	0	0	0	0	D	210
0	114	0	1	0	0	0	0	0	101D	211
0	0	5	6	0	0	0	0	0	D	212
0	115	0	1	0	0	0	0	0	1D	213
0	0	5	1	0	0	0	0	0	D	214
0	116	0	1	0	0	0	0	0	1D	215
0	0	5	1	0	0	0	0	0	D	216
0	117	0	1	0	0	0	0	0	1D	217
0	0	5	1	0	0	0	0	0	D	218
0	118	0	1	0	0	0	0	0	1D	219
0	0	5	1	0	0	0	0	0	D	220
110	119	0	1	0	0	0	0	0	10101D	221
110	0	5	1	0	0	0	0	0	D	222
0	120	0	1	0	0	0	0	0	1D	223
0	0	5	1	0	0	0	0	0	D	224
0	121	0	1	0	0	0	0	0	1D	225
0	0	5	1	0	0	0	0	0	D	226
0	122	0	2	0	0	0	0	0	1D	227
0	0	5	1	0	0	0	0	0	D	228
0	123	0	2	0	0	0	0	0	1D	229
0	0	5	1	0	0	0	0	0	D	230
0	124	0	1	0	0	0	0	0	1D	231
0	0	5	1	0	0	0	0	0	D	232
0	125	0	1	0	0	0	0	0	1D	233
0	0	5	1	0	0	0	0	0	D	234
0	126	0	1	0	0	0	0	0	1D	235





106	159	0	1	0	0	0	0	0	0	1D	291
106	0	5	1	63	0	0	0	0	0	D	292
0	160	1	1	0	0	0	0	0	0	1D	293
0	0	5	2	0	0	0	0	0	0	D	294
228	162	0	1	0	0	0	0	0	0	101D	295
228	0	5	1	2	0	0	0	0	0	D	296
0	163	1	1	0	0	0	0	0	0	20001D	297
0	0	5	1	0	0	0	0	0	0	D	298
0	164	1	1	0	0	0	0	0	0	20001D	299
0	0	5	1	0	0	0	0	0	0	D	300
0	165	1	1	0	0	0	0	0	0	20001D	301
0	0	5	1	0	0	0	0	0	0	D	302
0	166	1	1	0	0	0	0	0	0	201D	303
0	0	0	1	0	0	0	0	0	0	D	304
0	167	1	1	0	0	0	0	0	0	1D	305
0	0	5	4	0	0	0	0	0	0	D	306
0	171	1	1	0	0	0	0	0	0	1D	307
0	0	5	2	0	0	0	0	0	0	D	308
106	173	0	1	0	0	0	0	0	0	10101D	309
106	0	5	1	63	0	0	0	0	0	D	310
106	174	0	1	0	0	0	0	0	0	1D	311
106	0	5	9	11	0	0	0	0	0	D	312
112	183	0	1	0	0	0	0	0	0	1D	313
112	0	5	5	0	0	0	0	0	0	D	314
112	188	0	1	0	0	0	0	0	0	10001D	315
112	0	5	4	0	0	0	0	0	0	D	316
112	192	0	1	0	0	0	0	0	0	1D	317
112	0	5	14	0	0	0	0	0	0	D	318
126	206	0	1	0	0	0	0	0	0	1D	319
126	0	5	7	0	0	0	0	0	0	D	320
0	213	0	1	0	0	0	0	0	0	20001D	321
0	0	5	6	0	0	0	0	0	0	D	322
0	219	0	1	0	0	0	0	0	0	20001D	323
0	0	5	6	0	0	0	0	0	0	D	324
126	225	0	1	0	0	0	0	0	0	1D	325
126	0	5	5	0	0	0	0	0	0	D	326
0	230	0	1	0	0	0	0	0	0	20001D	327
0	0	5	22	0	0	0	0	0	0	D	328
126	252	0	1	0	0	0	0	0	0	1D	329
126	0	5	5	0	0	0	0	0	0	D	330
126	257	0	1	0	0	0	0	0	0	1D	331
126	0	5	5	0	0	0	0	0	0	D	332
126	262	0	1	0	0	0	0	0	0	1D	333
126	0	5	7	0	0	0	0	0	0	D	334
126	269	0	1	0	0	0	0	0	0	1D	335
126	0	5	7	0	0	0	0	0	0	D	336
126	276	0	1	0	0	0	0	0	0	1D	337
126	0	5	7	0	0	0	0	0	0	D	338
112	283	0	1	0	0	0	0	0	0	1D	339
112	0	5	3	0	0	0	0	0	0	D	340
112	286	0	1	0	0	0	0	0	0	1D	341
112	0	5	3	0	0	0	0	0	0	D	342
112	289	0	1	0	0	0	0	0	0	1D	343
112	0	5	6	0	0	0	0	0	0	D	344
112	295	0	1	0	0	0	0	0	0	1D	345



106	364	0	0	0	0	0	0	0	0	10101D	401
106	0	5	1	40	0	0	0	0	0	D	402
106	365	0	0	0	0	0	0	0	0	10101D	403
106	0	5	1	40	0	0	0	0	0	D	404
202	366	0	1	0	0	0	0	0	0	101D	405
202	0	5	1	0	0	0	0	0	0	D	406
212	367	0	0	0	0	0	0	0	0	10101D	407
212	0	5	1	0	0	0	0	0	0	D	408
100	368	0	1	0	0	0	0	0	0	10101D	409
100	0	5	1	0	0	0	0	0	0	D	410
214	369	0	1	0	0	0	0	0	0	10101D	411
214	0	5	1	4	0	0	0	0	0	D	412
220	370	0	1	0	0	0	0	0	0	101D	413
220	0	5	1	0	0	0	0	0	0	D	414
212	371	0	0	0	0	0	0	0	0	20101D	415
212	0	5	2	0	0	0	0	0	0	D	416
214	373	0	1	0	0	0	0	0	0	20101D	417
214	0	5	1	2	0	0	0	0	0	D	418
214	374	0	1	0	0	0	0	0	0	20101D	419
214	0	5	1	2	0	0	0	0	0	D	420
106	375	0	1	40	0	0	0	0	0	20101D	421
106	0	5	1	0	0	0	0	0	0	D	422
106	376	0	0	0	0	0	0	0	0	20101D	423
106	0	5	1	40	0	0	0	0	0	D	424
216	377	0	1	0	0	0	0	0	0	101D	425
216	0	5	1	0	0	0	0	0	0	D	426
102	378	0	0	0	0	0	0	0	0	10201D	427
102	0	0	1	0	0	0	0	0	0	D	428
230	379	0	1	0	0	0	0	0	0	101D	429
230	0	5	1	0	0	0	0	0	0	D	430
0	380	1	0	0	0	0	0	0	0	10201D	431
0	0	0	1	0	0	0	0	0	0	D	432
0	381	1	1	0	0	0	0	0	0	101D	433
0	0	5	1	0	0	0	0	0	0	D	434
0	382	1	1	0	0	0	0	0	0	20001D	435
0	0	5	1	0	0	0	0	0	0	D	436
0	383	1	1	0	0	0	0	0	0	20001D	437
0	0	5	1	0	0	0	0	0	0	D	438
0	384	1	1	0	0	0	0	0	0	20001D	439
0	0	5	1	0	0	0	0	0	0	D	440
0	385	1	1	0	0	0	0	0	0	20001D	441
0	0	5	1	0	0	0	0	0	0	D	442
0	386	1	1	0	0	0	0	0	0	20001D	443
0	0	5	1	0	0	0	0	0	0	D	444
0	387	1	1	0	0	0	0	0	0	20001D	445
0	0	5	1	0	0	0	0	0	0	D	446
0	388	1	1	0	0	0	0	0	0	20001D	447
0	0	5	1	0	0	0	0	0	0	D	448
0	389	1	1	0	0	0	0	0	0	201D	449
0	0	0	1	0	0	0	0	0	0	D	450
0	390	1	1	0	0	0	0	0	0	20001D	451
0	0	5	1	0	0	0	0	0	0	D	452
0	391	1	1	0	0	0	0	0	0	20001D	453
0	0	5	1	0	0	0	0	0	0	D	454
0	392	1	1	0	0	0	0	0	0	20001D	455







0	477	1	1	0	0	0	0	0	0	0	0	0	20001D	621
0	0	5	1	0	0	0	0	0	0	0	0	0	D	622
0	478	1	1	0	0	0	0	0	0	0	0	0	20001D	623
0	0	5	1	0	0	0	0	0	0	0	0	0	D	624
0	479	1	1	0	0	0	0	0	0	0	0	0	20001D	625
0	0	5	1	0	0	0	0	0	0	0	0	0	D	626
0	480	1	1	0	0	0	0	0	0	0	0	0	20001D	627
0	0	5	1	0	0	0	0	0	0	0	0	0	D	628
0	481	1	1	0	0	0	0	0	0	0	0	0	20001D	629
0	0	5	1	0	0	0	0	0	0	0	0	0	D	630
0	482	1	1	0	0	0	0	0	0	0	0	0	20001D	631
0	0	5	1	0	0	0	0	0	0	0	0	0	D	632
0	483	1	1	0	0	0	0	0	0	0	0	0	20001D	633
0	0	5	1	0	0	0	0	0	0	0	0	0	D	634
0	484	1	1	0	0	0	0	0	0	0	0	0	20001D	635
0	0	5	1	0	0	0	0	0	0	0	0	0	D	636
0	485	1	1	0	0	0	0	0	0	0	0	0	20001D	637
0	0	5	1	0	0	0	0	0	0	0	0	0	D	638
0	486	1	1	0	0	0	0	0	0	0	0	0	201D	639
0	0	0	1	0	0	0	0	0	0	0	0	0	D	640
0	487	1	1	0	0	0	0	0	0	0	0	0	10101D	641
0	0	0	1	0	0	0	0	0	0	0	0	0	D	642
214	488	0	1	0	0	0	0	0	0	0	0	0	101D	643
214	0	5	1	0	0	0	0	0	0	0	0	0	D	644
0	489	1	1	0	0	0	0	0	0	0	0	0	101D	645
0	0	5	1	0	0	0	0	0	0	0	0	0	D	646
212	490	0	0	0	0	0	0	0	0	0	0	0	101D	647
212	0	5	1	0	0	0	0	0	0	0	0	0	D	648
212	491	0	0	0	0	0	0	0	0	0	0	0	10101D	649
212	0	5	2	0	0	0	0	0	0	0	0	0	D	650
106	493	0	1	0	0	0	0	0	0	0	0	0	10101D	651
106	0	5	2	0	0	0	0	0	0	0	0	0	D	652
228	495	0	1	0	0	0	0	0	0	0	0	0	101D	653
228	0	5	1	0	0	0	0	0	0	0	0	0	D	654
212	496	0	0	0	0	0	0	0	0	0	0	0	101D	655
212	0	5	1	0	0	0	0	0	0	0	0	0	D	656
0	497	1	0	0	0	0	0	0	0	0	0	0	10101D	657
0	0	0	1	0	0	0	0	0	0	0	0	0	D	658
214	498	0	1	0	0	0	0	0	0	0	0	0	101D	659
214	0	5	1	0	0	0	0	0	0	0	0	0	D	660
0	499	1	1	0	0	0	0	0	0	0	0	0	101D	661
0	0	5	1	0	0	0	0	0	0	0	0	0	D	662
0	500	1	0	0	0	0	0	0	0	0	0	0	10101D	663
0	0	0	1	0	0	0	0	0	0	0	0	0	D	664
214	501	0	1	0	0	0	0	0	0	0	0	0	101D	665
214	0	5	1	0	0	0	0	0	0	0	0	0	D	666
0	502	1	1	0	0	0	0	0	0	0	0	0	101D	667
0	0	5	1	0	0	0	0	0	0	0	0	0	D	668
0	503	1	0	0	0	0	0	0	0	0	0	0	10101D	669
0	0	0	1	0	0	0	0	0	0	0	0	0	D	670
214	504	0	1	0	0	0	0	0	0	0	0	0	101D	671
214	0	5	1	0	0	0	0	0	0	0	0	0	D	672
0	505	1	1	0	0	0	0	0	0	0	0	0	101D	673
0	0	5	1	0	0	0	0	0	0	0	0	0	D	674
0	506	1	0	0	0	0	0	0	0	0	0	0	10101D	675





212	537	0	0	0	0	0	0	0	0	101D	731
212	540	0	5	3	0	0	0	0	0	D	732
212	543	0	5	3	0	0	0	0	0	101D	733
212	546	0	5	3	0	0	0	0	0	D	734
212	549	0	5	3	0	0	0	0	0	101D	735
212	552	0	5	3	0	0	0	0	0	D	736
212	555	0	5	3	0	0	0	0	0	101D	737
212	558	0	5	3	0	0	0	0	0	D	738
212	561	0	5	3	0	0	0	0	0	101D	739
212	564	0	5	3	0	0	0	0	0	D	740
212	567	0	5	3	0	0	0	0	0	101D	741
212	570	0	5	3	0	0	0	0	0	D	742
212	573	0	5	3	0	0	0	0	0	101D	743
212	576	0	5	3	0	0	0	0	0	D	744
212	579	0	5	3	0	0	0	0	0	101D	745
212	582	0	5	3	0	0	0	0	0	D	746
212	585	0	5	3	0	0	0	0	0	101D	747
212	588	0	5	3	0	0	0	0	0	D	748
212	591	0	5	3	0	0	0	0	0	101D	749
212	594	0	5	3	0	0	0	0	0	D	750
212	597	0	5	3	0	0	0	0	0	101D	751
212	600	0	5	3	0	0	0	0	0	D	752
212	603	0	5	3	0	0	0	0	0	101D	753
212	606	0	5	3	0	0	0	0	0	D	754
212	609	0	5	3	0	0	0	0	0	101D	755
212	612	0	5	3	0	0	0	0	0	D	756
212	615	0	5	3	0	0	0	0	0	101D	757
212	618	0	5	3	0	0	0	0	0	D	758
212	621	0	5	3	0	0	0	0	0	101D	759
212	624	0	5	3	0	0	0	0	0	D	760
212	627	0	5	3	0	0	0	0	0	101D	761
212	630	0	5	3	0	0	0	0	0	D	762
212	633	0	5	3	0	0	0	0	0	101D	763
212	636	0	5	3	0	0	0	0	0	D	764
212	639	0	5	3	0	0	0	0	0	101D	765
212	642	0	5	3	0	0	0	0	0	D	766
212	645	0	5	3	0	0	0	0	0	101D	767
212	648	0	5	3	0	0	0	0	0	D	768
212	651	0	5	3	0	0	0	0	0	101D	769
212	654	0	5	3	0	0	0	0	0	D	770
212	657	0	5	3	0	0	0	0	0	101D	771
212	660	0	5	3	0	0	0	0	0	D	772
212	663	0	5	3	0	0	0	0	0	101D	773
212	666	0	5	3	0	0	0	0	0	D	774
212	669	0	5	3	0	0	0	0	0	101D	775
212	672	0	5	3	0	0	0	0	0	D	776
212	675	0	5	3	0	0	0	0	0	101D	777
212	678	0	5	3	0	0	0	0	0	D	778
212	681	0	5	3	0	0	0	0	0	101D	779
212	684	0	5	3	0	0	0	0	0	D	780
212	687	0	5	3	0	0	0	0	0	101D	781
212	690	0	5	3	0	0	0	0	0	D	782
212	693	0	5	3	0	0	0	0	0	101D	783
212	696	0	5	3	0	0	0	0	0	D	784
212	699	0	5	3	0	0	0	0	0	101D	785

212	0	3	0	0	0	0	101D	786
212	619	0	0	0	0	0	101D	787
212	0	3	3	0	0	0	D	788
212	622	0	0	0	0	0	101D	789
212	0	3	0	0	0	0	D	790
212	625	0	0	0	0	0	101D	791
212	0	3	0	0	0	0	D	792
212	628	0	0	0	0	0	101D	793
212	0	3	3	0	0	0	D	794
212	631	0	0	0	0	0	101D	795
212	0	3	0	0	0	0	D	796
212	634	0	0	0	0	0	101D	797
212	0	2	0	0	0	0	D	798
212	636	0	0	0	0	0	101D	799
212	0	3	0	0	0	0	D	800
212	639	0	0	0	0	0	101D	801
212	0	2	0	0	0	0	D	802
212	641	0	0	0	0	0	101D	803
212	0	3	0	0	0	0	D	804
212	644	0	0	0	0	0	101D	805
212	0	2	0	0	0	0	D	806
212	646	0	0	0	0	0	101D	807
212	0	2	0	0	0	0	D	808
212	648	0	0	0	0	0	101D	809
212	0	3	0	0	0	0	D	810
212	651	0	0	0	0	0	101D	811
212	0	3	0	0	0	0	D	812
212	654	0	0	0	0	0	101D	813
212	0	2	0	0	0	0	D	814
212	656	0	0	0	0	0	101D	815
212	0	3	0	0	0	0	D	816
212	659	0	0	0	0	0	101D	817
212	0	2	0	0	0	0	D	818
212	661	0	0	0	0	0	101D	819
212	0	3	0	0	0	0	D	820
212	664	0	0	0	0	0	101D	821
212	0	3	0	0	0	0	D	822
212	667	0	0	0	0	0	101D	823
212	0	3	0	0	0	0	D	824
212	670	0	0	0	0	0	101D	825
212	0	3	0	0	0	0	D	826
212	673	0	0	0	0	0	101D	827
212	0	3	0	0	0	0	D	828
212	676	0	0	0	0	0	101D	829
212	0	3	0	0	0	0	D	830
212	679	0	0	0	0	0	101D	831
212	0	3	0	0	0	0	D	832
212	682	0	0	0	0	0	101D	833
212	0	3	0	0	0	0	D	834
212	685	0	0	0	0	0	101D	835
212	0	3	0	0	0	0	D	836
212	688	0	0	0	0	0	101D	837
212	0	3	0	0	0	0	D	838
212	691	0	0	0	0	0	101D	839
212	0	3	0	0	0	0	D	840



212	0	5	2	4	0	0	0	D	896
212	769	0	0	0	0	0	0	101D	897
212	0	5	3	5	0	0	0	D	898
212	772	0	0	0	0	0	0	101D	899
212	0	5	3	6	0	0	0	D	900
212	775	0	0	0	0	0	0	101D	901
212	0	5	3	7	0	0	0	D	902
212	778	0	0	0	0	0	0	101D	903
212	0	5	3	8	0	0	0	D	904
212	781	0	0	0	0	0	0	101D	905
212	0	5	5	100	0	0	0	D	906
212	786	0	0	0	0	0	0	101D	907
212	0	5	10	101	0	0	0	D	908
0	796	1	1	0	0	0	0	101D	909
0	0	5	6	0	0	0	0	D	910
0	802	1	1	0	0	0	0	101D	911
0	0	5	2	0	0	0	0	D	912
212	804	0	0	0	0	0	0	101D	913
212	0	5	15	105	0	0	0	D	914
0	819	0	0	0	0	0	0	101D	915
0	0	5	2	0	0	0	0	D	916
0	821	0	0	0	0	0	0	101D	917
0	0	5	1	0	0	0	0	D	918
110	822	0	1	0	0	0	0	10001D	919
110	0	5	1	0	0	0	0	D	920
100	823	0	1	0	0	0	0	20001D	921
100	0	5	1	0	0	0	0	D	922
0	824	1	0	0	0	0	0	10201D	923
0	0	0	1	0	0	0	0	D	924
120	825	0	1	0	0	0	0	1D	925
120	0	5	1	0	0	0	0	D	926
110	826	0	1	0	0	0	0	00001D	927
110	0	5	1	0	0	0	0	D	928
0	827	1	0	0	0	0	0	10201D	929
0	0	0	1	0	0	0	0	D	930
0	828	0	1	0	0	0	0	1D	931
0	0	5	1	0	0	0	0	D	932
100	829	0	1	0	0	0	0	20001D	933
100	0	5	1	0	0	0	0	D	934
0	830	1	0	0	0	0	0	10201D	935
0	0	0	1	0	0	0	0	D	936
122	831	0	1	0	0	0	0	1D	937
122	0	5	1	0	0	0	0	D	938
128	832	0	1	0	0	0	0	1D	939
128	0	5	15	0	0	0	0	D	940
100	847	0	1	0	0	0	0	20001D	941
100	0	5	1	0	0	0	0	D	942
110	848	0	1	0	0	0	0	20001D	943
110	0	5	1	0	0	0	0	D	944
0	849	1	0	0	0	0	0	10201D	945
0	0	0	1	0	0	0	0	D	946
118	850	0	1	0	0	0	0	1D	947
118	0	5	1	0	0	0	0	D	948
100	851	0	1	0	0	0	0	20001D	949
100	0	5	1	0	0	0	0	D	950

110	852	0	1	0	0	0	0	0	20001D	951
110	0	5	1	0	0	0	0	0	D	952
0	853	1	0	0	0	0	0	0	10201D	953
0	0	0	1	0	0	0	0	0	D	954
118	854	0	1	0	0	0	0	0	1D	955
118	0	5	1	1	1	0	0	0	D	956
110	855	0	1	0	0	0	0	0	00001D	957
110	0	5	1	0	0	0	0	0	D	958
0	856	1	0	0	0	0	0	0	10201D	959
0	0	0	1	0	0	0	0	0	D	960
0	857	0	1	0	0	0	0	0	1D	961
0	0	5	1	0	0	0	0	0	D	962
128	858	0	1	0	0	0	0	0	1D	963
128	0	5	45	3	0	0	0	0	D	964
128	903	0	1	0	0	0	0	0	1D	965
128	0	5	45	2	0	0	0	0	D	966
0	948	1	0	0	0	0	0	0	10201D	967
0	0	0	1	0	0	0	0	0	D	968
114	949	0	1	0	0	0	0	0	20001D	969
114	0	5	56	0	0	0	0	0	D	970
0	1005	1	0	0	0	0	0	0	10201D	971
0	0	0	1	0	0	0	0	0	D	972
114	1006	0	1	0	0	0	0	0	20001D	973
114	0	5	57	0	0	0	0	0	D	974
0	1063	1	0	0	0	0	0	0	10201D	975
0	0	0	1	0	0	0	0	0	D	976
114	1064	0	1	0	0	0	0	0	1D	977
114	0	5	50	0	0	0	0	0	D	978
100	1114	0	1	0	0	0	0	0	20001D	979
100	0	5	1	0	0	0	0	0	D	980
110	1115	0	1	0	0	0	0	0	20001D	981
110	0	5	1	0	0	0	0	0	D	982
0	1116	0	0	0	0	0	0	0	10201D	983
0	0	0	1	0	0	0	0	0	D	984
118	1117	0	1	0	0	0	0	0	20001D	985
118	0	5	1	0	0	0	0	0	D	986
100	1118	0	1	0	0	0	0	0	20001D	987
100	0	5	1	0	0	0	0	0	D	988
110	1119	0	1	0	0	0	0	0	20001D	989
110	0	5	1	0	0	0	0	0	D	990
0	1120	0	0	0	0	0	0	0	10201D	991
0	0	0	1	0	0	0	0	0	D	992
118	1121	0	1	0	0	0	0	0	1D	993
118	0	5	1	0	0	0	0	0	D	994
406	1122	0	0	0	0	0	0	0	10001D	995
406	0	0	1	15	0	0	0	0	D	996
406	1123	0	0	0	0	0	0	0	10001D	997
406	0	0	1	17	0	0	0	0	D	998
406	1124	0	0	0	0	0	0	0	10001D	999
406	0	0	1	16	0	0	0	0	D	1000
404	1125	0	0	0	0	0	0	0	201D	1001
404	0	0	1	0	0	0	0	0	D	1002
106	1126	0	0	0	0	0	0	0	101D	1003
106	0	5	6	34	0	0	0	0	D	1004
106	1132	0	0	0	0	0	0	0	101D	1005



[illegible]

Entity and Form Number	Entity Description on N-entity Drawing
406 F 15	top view name
124 F 0	top view matrix
108 F 0	top view plane
108 F 0	top view plane
108 F 0	top view plane
108 F 0	top view plane



410,2,1,0,27,29,31,33,0,0,0,1,23;	35P	22	410	top view
110,1,0,16,0,0,0,1,0,9,99928E-03,0,0;	37P	23	110	vertical grid line
110,3,0,16,0,0,0,3,0,9,99928E-03,0,0;	39P	24	110	vertical grid line
110,5,0,16,0,0,0,5,0,9,99928E-03,0,0;	41P	25	110	vertical grid line
110,7,0,16,0,0,0,7,0,9,99928E-03,0,0;	43P	26	110	vertical grid line
110,9,0,16,0,0,0,9,0,9,99928E-03,0,0;	45P	27	110	vertical grid line
110,11,0,16,0,0,0,11,0,9,99928E-03,0,0;	47P	28	110	vertical grid line
110,13,0,16,0,0,0,13,0,9,99928E-03,0,0;	49P	29	110	vertical grid line
110,15,0,16,0,0,0,15,0,9,99928E-03,0,0;	51P	30	110	vertical grid line
110,17,0,16,0,0,0,17,0,9,99928E-03,0,0;	53P	31	110	vertical grid line
110,19,0,16,0,0,0,19,0,9,99928E-03,0,0;	55P	32	110	vertical grid line
110,21,0,16,0,0,0,21,0,9,99928E-03,0,0;	57P	33	110	vertical grid line
110,21,0,16,0,0,0,1,0,16,0,0,0;	59P	34	110	horizontal grid line
110,1,0,14,0,0,0,21,0,14,0,0,0;	61P	35	110	horizontal grid line
110,1,0,12,0,0,0,21,0,12,0,0,0;	63P	36	110	horizontal grid line
110,1,0,10,0,0,0,21,0,10,0,0,0;	65P	37	110	horizontal grid line
110,1,0,8,0,0,0,21,0,8,0,0,0;	67P	38	110	horizontal grid line
110,1,0,6,0,0,0,21,0,6,0,0,0;	69P	39	110	horizontal grid line
110,1,0,4,0,0,0,21,0,4,0,0,0;	71P	40	110	horizontal grid line
110,1,0,2,0,0,0,21,0,2,0,0,0;	73P	41	110	horizontal grid line
100,0,0,2,0,15,0,2,0,14,5,1,5,15,0;	75P	42	100	circular arc
116,3,5,15,0,0,0;	77P	43	116	point for 102
110,3,5,15,0,0,0,3,5,15,5,0,0;	79P	44	110	line for 102
100,0,0,0,0,0,0,0,0,0,0,5,-0,5,0,0;	81P	45	100	circular arc for 102
124,1,0,0,0,0,0,8,0,0,0,1,0,0,0,15,0,0,0,0,0,0,1,0,0,0,0;	83P	46	124 F 0	matrix for 104 Form 1
104,0,0,625,0,0,0,25,0,0,0,0,-0,015625,0,0,0,5,0,0,0,0,5,	85P	47	104 F 1	conic - ellipse
-1,94707E-07;	85P	48		
116,18,0,15,25,0,0;	87P	49	116	top point for 106 Form 20
116,18,0,14,75,0,0;	89P	50	116	bottom point for 106 Form 20
100,0,0,20,0,15,0,20,5,15,0,20,5,15,0;	91P	51	110	circular arc for 106 Form 21
0,16,0,9,5,0,0,16,0,8,5,0,0;	93P	52		
110,3,5,13,5,0,0,3,5,12,5,0,0;	95P	53	110	line for 106 Form 32 box
110,3,5,12,5,0,0,4,5,12,5,0,0;	97P	54	110	line for 106 Form 32 box
110,4,5,12,5,0,0,4,5,13,5,0,0;	99P	55	110	line for 106 Form 32 box
110,4,5,13,5,0,0,3,5,13,5,0,0;	101P	56	110	line for 106 Form 32 box
110,3,75,13,25,0,0,3,75,12,75,0,0;	103P	57	110	line for 106 Form 32 box
110,3,75,12,75,0,0,4,25,12,75,0,0;	105P	58	110	line for 106 Form 32 box
110,4,25,12,75,0,0,4,25,13,25,0,0;	107P	59	110	line for 106 Form 32 box
110,4,25,13,25,0,0,3,75,13,25,0,0;	109P	60	110	line for 106 Form 32 box
110,5,5,13,5,0,0,5,5,12,5,0,0;	111P	61	110	line for 106 Form 33 box
110,5,5,12,5,0,0,6,5,12,5,0,0;	113P	62	110	line for 106 Form 33 box
110,6,5,12,5,0,0,6,5,13,5,0,0;	115P	63	110	line for 106 Form 33 box
110,6,5,13,5,0,0,5,5,13,5,0,0;	117P	64	110	line for 106 Form 33 box
110,7,5,12,5,0,0,8,5,12,5,0,0;	119P	65	110	line for 106 Form 34 box
110,8,5,12,5,0,0,8,5,13,5,0,0;	121P	66	110	line for 106 Form 34 box
110,9,5,13,5,0,0,10,5,13,5,0,0;	123P	67	110	line for 106 Form 35 box
110,10,5,13,5,0,0,10,5,12,5,0,0;	125P	68	110	line for 106 Form 35 box
110,10,5,12,5,0,0,9,5,12,5,0,0;	127P	69	110	line for 106 Form 35 box
110,9,5,12,5,0,0,9,5,13,5,0,0;	129P	70	110	line for 106 Form 35 box
110,12,5,13,0,0,0,12,5,13,5,0,0;	131P	71	110	line for 106 Form 36 box
110,12,5,13,5,0,0,11,5,13,5,0,0;	133P	72	110	line for 106 Form 36 box
110,11,5,13,5,0,0,11,5,12,5,0,0;	135P	73	110	line for 106 Form 36 box
110,11,5,12,5,0,0,12,0,12,5,0,0;	137P	74	110	line for 106 Form 36 box
110,13,5,13,5,0,0,14,5,13,5,0,0;	139P	75	110	line for 106 Form 37 box
110,14,5,13,5,0,0,14,5,12,5,0,0;	141P	76	110	line for 106 Form 37 box

110, 14.5, 12.5, 0.0, 13.5, 12.5, 0.0;	143P	77	110	line for 106 Form 37 box
110, 13.5, 12.5, 0.0, 13.5, 13.5, 0.0;	145P	78	110	line for 106 Form 37 box
110, 16.0, 13.5, 0.0, 16.5, 13.5, 0.0;	147P	79	110	line for 106 Form 38 box
110, 16.5, 13.5, 0.0, 16.5, 12.5, 0.0;	149P	80	110	line for 106 Form 38 box
110, 16.5, 12.5, 0.0, 15.5, 12.5, 0.0;	151P	81	110	line for 106 Form 38 box
110, 15.5, 12.5, 0.0, 15.5, 13.0, 0.0;	153P	82	110	line for 106 Form 38 box
100, 0.0, 8.5, 12.5, 8.5, 13.5, 7.5, 12.5;	155P	83	100	circular arc for 106 Form 34 box
100, 0.0, 12.5, 12.5, 12.5, 13.0, 12.0, 12.5;	157P	84	100	circular arc for 106 Form 36 box
106, 1.12, 0.20, 6.15, 20.1, 15.20, 0.05, 15.19, 9.15, 19.4,	159P	85	106 F 21	centerline thru centers
15.20, 15.6, 20.15, 1.20, 15.06, 20.14, 9.20, 14.4;	159P	86		
106, 1.6, 0.0, 18.0, 15.3681, 18.0, 15.125, 18.0, 15.0625, 18.0, 14.9375,	161P	87	106 F 20	centerline thru points
18.0, 14.875, 18.0, 14.6319;	161P	88		
0, 1.6, 0.0, 20.0, 15.6181, 20.0, 15.125, 20.0, 15.0625, 20.0, 14.9375,	163P	89		
20.0, 14.875, 20.0, 14.3819;	163P	90		
116, 17.5, 13.5, 0.0;	165P	91	116	top point for 106 Form 40
116, 17.5, 12.5, 0.0;	167P	92	116	bottom point for 106 Form 40
106, 1.5, 0.0, 3.5, 10.5, 3.5, 11.5, 4.5, 11.5, 4.5, 10.5, 3.5, 10.5;	169P	93	106 F 63	simple closed area for 108 Form 1
108, 0.0, 0.0, 1.0, 0.0, 169, 0.0, 0.0, 0.0, 0.0;	171P	94	108 F 1	bounded plane
110, 6.0, 11.5, 0.0, 6.0, 10.5, 0.0;	173P	95	110	line
116, 12.0, 11.0, 0.0;	175P	96	116	point
110, 17.5, 1.5, 0.0, 18.5, 1.5, 0.0;	177P	97	110	line for 230
110, 18.5, 1.5, 0.0, 18.5, 0.5, 0.0;	179P	98	110	line for 230
110, 18.5, 0.5, 0.0, 17.5, 0.5, 0.0;	181P	99	110	line for 230
110, 17.5, 0.5, 0.0, 17.5, 1.5, 0.0;	183P	100	110	line for 230
100, 0.0, 7.25, 0.5, 7.75, 0.5, 7.25, 1.0;	185P	101	100	circular arc for 222
116, 4.25, 0.5, 0.0;	187P	102	116	right point for 218
116, 3.5, 0.5, 0.0;	189P	103	116	left point for 218
116, 1.5, 0.5, 0.0;	191P	104	116	left point for 216
116, 2.5, 0.5, 0.0;	193P	105	116	right point for 216
110, 7.5, 7.0, 0.0, 7.25, 6.75, 0.0;	195P	106	110	top line for 202
214, 1.0, 1.0, 1.0, 1.0, 11.5, 3.0, 12.5, 3.0;	197P	107	214 F 7	leader - rectangle
214, 1.0, 15.0, 0.05, 0.0, 19.5, 3.0, 20.5, 3.0;	199P	108	214 F 11	leader - open triangle
116, 11.5, 6.75, 0.0;	201P	109	116	point for 210
100, 0.0, 9.5, 7.0, 9.75, 7.0, 9.75, 7.0;	203P	110	100	circular arc for 206
110, 7.25, 6.75, 0.0, 7.5, 6.75, 0.0;	205P	111	110	bottom line for 202
100, 0.0, 14.25, 1.25, 14.625, 1.25, 14.625, 1.25;	207P	112	100	circular arc for 228 Form 2
110, 13.875, 1.25, 0.0, 14.625, 1.25, 0.0;	209P	113	110	line for 228 Form 2
0;	211P	114		
0;	213P	115		
0;	215P	116		
0;	217P	117		
0;	219P	118		
110, 9.5, 1.0, 0.0, 10.5, 1.0, 0.0;	221P	119	110	line for 228 Form 0
0;	223P	120		
0;	225P	121		
0;	227P	122		
0;	229P	123		
0;	231P	124		
0;	233P	125		
0;	235P	126		
0, 8.34853, 12.5, 0.0, 8.5, 12.6515, 0.0;	237P	127		
116, 6.0, 0.5, 0.0;	239P	128	116	point for 220
110, 1.0, 0.0, 1.0, 0.0, 21.0, 0.0, 1.0, 0.0;	241P	129	110	horizontal grid line
110, 19.75, 10.75, 0.0, 20.0, 11.0, -1.0;	243P	130	110	line for 122
0, 0.0, 20.0, 11.0, 20.25, 11.0, 19.75, 11.0;	245P	131		

0.13.5,11.5,0.0,13.5,10.5,0.0;  
 0.0,0.14.875,11.0,14.5,11.5,14.5,10.5;  
 0.15.5,11.5,0.0,15.5,10.5,0.0;  
 0.0,0.16.875,11.0,16.5,11.5,16.5,10.5;  
 124,1.0,0.0,0.0,6.0,0.0,1.0,0.0,15.0,0.0,0.0,0.0,1.0,0.0,0.0;  
 104,0.25,0.0,0.0,0.625,0.0,0.0,0.0,0.0,0.0,0.0,0.0,0.25,0.0,0.25,  
 8.74228E-08;  
 124,-4.37114E-08,-1.0,0.0,12.0,1.0,-4.37114E-08,0.0,15.0,0.0,0.0,  
 0.0,1.0,0.0;  
 104,0.0,0.0,1.0,-1.0,0.0,0.0,0.0,0.0,0.25,-0.5,0.25,0.5;  
 124,-1.0,8.74228E-08,0.0,10.25,-8.74228E-08,-1.0,0.0,15.0,0.0,0.0,  
 0.0,1.0,0.0;  
 104,-0.015625,0.0,0.0,0.625,0.0,0.0,9.76563E-04,0.0,0.5,-0.216506,  
 0.5,0.216506;  
 0.0,0.18.6563,11.125,18.5,11.5,18.5,10.75;  
 100,0.0,20.0,8.75,20.5,8.75,19.5,8.75;  
 100,0.0,20.0,8.75,20.5,8.75,19.5,8.75;  
 0.14,0.9.75,0.0,14.0,8.5,0.0;  
 0.18,0.11.75,0.0,18.0,10.5,0.0;  
 0.17.597,13.5,0.0,17.75,13.5,0.0;  
 0.1.5,7.43969,-0.34202,1.5,6.5,0.0;  
 0.2.22313,2.875,6.608,2.5,7.108,2.5,6.108;  
 0.1.5,7.78171,0.597673,1.5,6.84202,0.939693;  
 0.3.22313,2.875,6.608,2.5,7.108,2.5,6.108;  
 106,2.4,15.5,14.5,0.0,15.75,15.0,1.0,16.0,14.75,2.0,16.5,15.5,  
 3.0;  
 106,1.5,0.0,1.5,13.5,2.5,13.5,2.5,12.5,1.5,12.5,1.5,13.5;  
 106,1.5,0.0,19.5,13.5,20.5,13.5,20.5,12.75,19.5,12.75,19.5,13.5;  
 0.2.5,11.625,2.9375,0.0,11.625,3.0625,0.0,11.5,3.0625,0.0,  
 11.5,2.9375,0.0,11.625,2.9375,0.0;  
 228,723,2,207,209,1,719;  
 0.13.625,3.0625,0.0,13.5,3.0625,0.0;  
 0.13.5,3.0625,0.0,13.5,2.9375,0.0;  
 0.13.5,2.9375,0.0,13.625,2.9375,0.0;  
 0.4.295,297,299,301;  
 0.2,11,17.4375,2.9375,0.0,17.4566,2.94096,0.0,17.4738,2.94996,  
 0.0,17.4875,2.96369,0.0,17.4965,2.98089,0.0,17.5,3.0,0.0,  
 17.5035,3.01911,0.0,17.5125,3.03631,0.0,17.5262,3.05004,0.0,  
 17.5434,3.05904,0.0,17.5625,3.0625,0.0;  
 0.2,4.19.5,3.0,0.0,19.656,2.974,0.0,19.656,3.026,0.0,19.5,3.0,  
 0.0;  
 106,1.5,0.0,10.0,1.5,9.5,1.0,10.0,0.5,10.5,1.0,10.0,1.5;  
 106,1.26,0.0,14.5,14.75,14.4961,14.8127,14.4843,14.8743,  
 14.4649,14.9341,14.4362,14.9909,14.4045,15.0439,  
 14.3645,15.0923,14.3187,15.1353,14.2679,15.1722,  
 14.2129,15.2024,14.1545,15.2255,14.0937,15.2411,  
 14.0314,15.249,13.9686,15.249,13.9063,15.2411,  
 13.8455,15.2255,13.7871,15.2024,13.7321,15.1722,  
 13.6813,15.1353,13.6355,15.0923,13.5955,15.0439,  
 13.5618,14.9909,13.5351,14.9341,13.5157,14.8743,  
 13.5039,14.8127,13.5,14.75;  
 112,3.1,3,2,0.0,1.0,2.0,15.5,0.175003,-4.29153E-06,0.025002,  
 13.0,0.0250025,-4.29153E-06,0.075002,0.0,0.0,0.0,15.7,0.25,  
 0.0750017,-0.025003,13.1,0.25,0.225002,-0.0750015,0.0,0.0,0.0,  
 0.0,16.0,0.324995,-1.43051E-05,-0.150018,13.5,0.474998,

247P	132		
249P	133		
251P	134		
253P	135		
255P	136		
257P	137		
257P	138		
259P	139		
259P	140		
261P	141		
263P	142		
263P	143		
265P	144		
265P	145		
267P	146		
269P	147		
271P	148		
273P	149		
275P	150		
277P	151		
279P	152		
281P	153		
283P	154		
285P	155		
287P	156		
287P	157		
289P	158		
291P	159		
293P	160		
293P	161		
295P	162		
297P	163		
299P	164		
301P	165		
303P	166		
305P	167		
305P	168		
305P	169		
305P	170		
307P	171		
307P	172		
309P	173		
311P	174		
311P	175		
311P	176		
311P	177		
311P	178		
311P	179		
311P	180		
311P	181		
311P	182		
313P	183		
313P	184		
313P	185		
313P	186		

124 F 0 matrix for 104 Form 0  
104 F 0 conic - general

124 F 0 matrix for 104 Form 3

104 F 3 conic - parabola  
124 F 0 matrix for 104 Form 2

104 F 2 conic - hyperbola

100 circular arc to be offset by 130  
100 circular arc for 130

106 F 12 coordinate triples

106 F 63 simple closed area for 106 Form 31  
106 F 63 simple closed area

228 F 2 symbol - datum target

106 F 63 simple closed area for 228 Form 0  
106 F 11 linear planar curve

112 parametric spline for 106 Form 38

112	parametric spline for 102	112	parametric spline	126 F 0	bottom rational b-spline for 128 Form 3	126 F 0	rational b-spline
187	313P	187	313P	187	313P	187	313P
188	315P	188	315P	188	315P	188	315P
189	315P	189	315P	189	315P	189	315P
190	315P	190	315P	190	315P	190	315P
191	315P	191	315P	191	315P	191	315P
192	317P	192	317P	192	317P	192	317P
193	317P	193	317P	193	317P	193	317P
194	317P	194	317P	194	317P	194	317P
195	317P	195	317P	195	317P	195	317P
196	317P	196	317P	196	317P	196	317P
197	317P	197	317P	197	317P	197	317P
198	317P	198	317P	198	317P	198	317P
199	317P	199	317P	199	317P	199	317P
200	317P	200	317P	200	317P	200	317P
201	317P	201	317P	201	317P	201	317P
202	317P	202	317P	202	317P	202	317P
203	317P	203	317P	203	317P	203	317P
204	317P	204	317P	204	317P	204	317P
205	317P	205	317P	205	317P	205	317P
206	319P	206	319P	206	319P	206	319P
207	319P	207	319P	207	319P	207	319P
208	319P	208	319P	208	319P	208	319P
209	319P	209	319P	209	319P	209	319P
210	319P	210	319P	210	319P	210	319P
211	319P	211	319P	211	319P	211	319P
212	319P	212	319P	212	319P	212	319P
213	321P	213	321P	213	321P	213	321P
214	321P	214	321P	214	321P	214	321P
215	321P	215	321P	215	321P	215	321P
216	321P	216	321P	216	321P	216	321P
217	321P	217	321P	217	321P	217	321P
218	321P	218	321P	218	321P	218	321P
219	323P	219	323P	219	323P	219	323P
220	323P	220	323P	220	323P	220	323P
221	323P	221	323P	221	323P	221	323P
222	323P	222	323P	222	323P	222	323P
223	323P	223	323P	223	323P	223	323P
224	323P	224	323P	224	323P	224	323P
225	325P	225	325P	225	325P	225	325P
226	325P	226	325P	226	325P	226	325P
227	325P	227	325P	227	325P	227	325P
228	325P	228	325P	228	325P	228	325P
229	325P	229	325P	229	325P	229	325P
230	327P	230	327P	230	327P	230	327P
231	327P	231	327P	231	327P	231	327P
232	327P	232	327P	232	327P	232	327P
233	327P	233	327P	233	327P	233	327P
234	327P	234	327P	234	327P	234	327P
235	327P	235	327P	235	327P	235	327P
236	327P	236	327P	236	327P	236	327P
237	327P	237	327P	237	327P	237	327P
238	327P	238	327P	238	327P	238	327P
239	327P	239	327P	239	327P	239	327P
240	327P	240	327P	240	327P	240	327P
241	327P	241	327P	241	327P	241	327P

6.05456E-03, 7.2854, 0.111168, -0.0173066, -0.0118829, 0.5,	327P	242		
2.98023E-08, 1.49012E-07, -6.95388E-08, 5.78815, -0.161273,	327P	243		
0.0273528, -5.58297E-04, 7.36738, 0.040906, -0.0529552, 3.09523E-03,	327P	244		
0.5, 1.19209E-07, -5.96046E-08, -1.49012E-08, 5.65367, -0.108242,	327P	245		
0.0256779, -5.22304E-03, 7.35842, -0.0557187, -0.0436695,	327P	246		
6.35568E-03, 0.5, -4.47035E-08, -1.04308E-07, 8.19564E-08, 5.56588,	327P	247		
-0.0725551, 0.0100088, -3.33579E-03, 7.26539, -0.123991, -0.0246024,	327P	248		
8.20128E-03, 0.5, -7.45058E-09, 1.41561E-07, -3.22859E-08, 5.5,	327P	249		
-0.0625448, 2.86149E-06, -0.0200148, 7.125, -0.148592, 2.86289E-06,	327P	250		
0.0492077, 0.5, 1.78814E-07, 8.9407E-08, -1.93715E-07,	327P	251		
126, 7.5, 0.0, 1.0, 0.0, 0.0, 0.0, 0.0, 0.0, 1.0, 2.0, 3.0, 3.0, 3.0,	327P	252	126 F 0	top rational b-spline for 128 Form 0
3.0, 3.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0,	327P	253		
9.62841, 1.0, 7.56363, 9.80454, 1.0, 7.78636, 9.82671, 1.0, 8.21364,	329P	254		
9.4858, 1.0, 8.43636, 9.39545, 1.0, 8.49394, 9.44659, 1.0, 8.5, 9.5, 1.0,	329P	255		
0.0, 3.0;	329P	256		
126, 7.5, 0.0, 1.0, 0.0, 0.0, 0.0, 0.0, 0.0, 1.0, 2.0, 3.0, 3.0, 3.0,	331P	257	126 F 0	bottom rational b-spline for 128 Form 0
3.0, 3.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0,	331P	258		
8.87841, 0.0, 7.56363, 9.05454, 0.0, 7.78636, 9.07671, 0.0, 8.21364,	331P	259		
8.7358, 0.0, 8.43636, 8.64545, 0.0, 8.49394, 8.69659, 0.0, 8.5, 8.75, 0.0,	331P	260		
0.0, 3.0;	331P	261		
126, 10, 7.0, 0.1, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 1.0, 2.0, 3.0,	333P	262	126 F 0	top rational b-spline for 128 Form 3
4.0, 4.0, 4.0, 4.0, 4.0, 4.0, 4.0, 4.0, 4.0, 1.0, 1.0, 1.0, 1.0, 1.0,	333P	263		
1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0,	333P	264		
11.824, 9.50682, -0.689154, 11.684, 9.57359, -0.573494, 11.6892,	333P	265		
9.72056, -0.318937, 12.0, 9.84396, -0.105211, 12.3108, 9.72057,	333P	266		
-0.318927, 12.3159, 9.57359, -0.573499, 12.176, 9.50682, -0.689155,	333P	267		
12.0582, 9.49103, -0.716507, 12.0, 9.49103, -0.716507, 0.0, 4.0;	333P	268		
126, 10, 7.0, 0.1, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 1.0, 2.0, 3.0,	335P	269	126 F 0	top rational b-spline for 128 Form 2
4.0, 4.0, 4.0, 4.0, 4.0, 4.0, 4.0, 4.0, 4.0, 1.0, 1.0, 1.0, 1.0, 1.0,	335P	270		
1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0,	335P	271		
9.64802, 9.39761, -0.878308, 9.3681, 9.53116, -0.64699, 9.37832,	335P	272		
9.82511, -0.137863, 10.0, 10.0719, 0.289574, 10.6217, 9.82511,	335P	273		
-0.137856, 10.6319, 9.53116, -0.646992, 10.352, 9.39761, -0.87831,	335P	274		
10.1163, 9.36603, -0.933013, 10.0, 9.36603, -0.933013, 0.0, 4.0;	335P	275		
126, 10, 7.0, 0.1, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 1.0, 2.0, 3.0,	337P	276	126 F 0	bottom rational b-spline for 128 Form 2
4.0, 4.0, 4.0, 4.0, 4.0, 4.0, 4.0, 4.0, 4.0, 1.0, 1.0, 1.0, 1.0, 1.0,	337P	277		
1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0,	337P	278		
8.53159, -0.378308, 9.3681, 8.66514, -0.14699, 9.37832, 8.95908,	337P	279		
0.362137, 10.0, 9.20586, 0.789574, 10.6217, 8.95909, 0.362144, 10.6319,	337P	280		
8.66513, -0.146992, 10.352, 8.53158, -0.37831, 10.1163, 8.5, -0.433013,	337P	281		
10.0, 8.5, -0.433013, 0.0, 4.0;	337P	282		
112, 2, 1, 3, 2, 0, 0, 1.0, 2.0, 17.5, 0.0, 0.5, 0.0, 9.0, 2.0, -1.5, 0.0, 1.0,	339P	283	112	top parametric spline for 128 Form 9
0.0, 0.0, 0.18, 0.1, 0.0, -0.5, 0.0, 9.5, -1.0, 0.5, 0.0, 1.0, 0.0, 0.0, 0.0,	339P	284		
18.5, 0.0, -1.0, 0.0, 0.9, 0.0, 1.0, 0.0, 1.0, 0.0, 0.0, 0.0, 0.0;	339P	285		
112, 2, 1, 3, 2, 0, 0, 1.0, 2.0, 17.5, 0.0, 0.5, 0.0, 8.5, 2.0, -1.5, 0.0, 0.0,	341P	286	112	bottom parametric spline for 128 Form 9
0.0, 0.0, 0.18, 0.1, 0.0, -0.5, 0.0, 9.0, -1.0, 0.5, 0.0, 1.0, 0.0, 0.0, 0.0,	341P	287		
18.5, 0.0, -1.0, 0.0, 0.8, 0.5, 0.0, 1.0, 0.0, 0.0, 0.0, 0.0, 0.0;	341P	288		
112, 3, 1, 3, 3, 0, 0, 1.0, 2.0, 3.0, 5.0, 0.166669, -1.43051E-06, 0.0833333,	343P	289	112	top parametric spline for 144
7.5, 0.400002, -4.29153E-06, -0.149998, 1.0, 0.0, 0.0, 0.0, 0.5, 75,	343P	290		
0.416666, 0.249998, -0.166665, 7.75, -0.0500009, -0.449999, 0.25, 1.0,	343P	291		
0.0, 0.0, 0.0, 6.25, 0.416667, -0.249998, 0.08333316, 7.5, -0.199999,	343P	292		
0.300001, -0.100003, 1.0, 0.0, 0.0, 0.0, 6.5, 0.166666, -5.72205E-06,	343P	293		
0.49999, 7.5, 0.0999956, -1.432E-05, -0.600017, 1.0, 0.0, 0.0, 0.0;	343P	294		
112, 3, 1, 3, 3, 0, 0, 1.0, 2.0, 3.0, 5.0, 0.166669, -1.43051E-06, 0.0833333,	345P	295	112	bottom parametric spline for 144
6.75, 0.400002, -4.29153E-06, -0.149999, 0.0, 0.0, 0.0, 0.0, 0.5, 75,	345P	296		

112	parametric spline for 102	112	parametric spline	112	bottom rational b-spline for 128 Form 3	112	bottom rational b-spline
313P	-5.72205E-06,-0.450009,0.0,0.0,0.0,0.0;	313P	187	126 F 0	313P	187	126 F 0
315P	112,3,1,3,2,0,0,1,0,2,0,4,0,0,5625,0.0,-0.0625,15.0,-0.312501,	315P	188		315P	188	
315P	1.43051E-06,0.0624995,0.0,0.0,0.0,0.0,4.5,0.375,-0.1875,0.0625,	315P	189		315P	189	
315P	14.75,-0.125,0.1875,-0.0625005,0.0,0.0,0.0,4.75,0.1875,0.0,	315P	190		315P	190	
315P	0.375,14.75,0.062499,-2.86102E-06,-0.375003,0.0,0.0,0.0,0.0;	315P	191		315P	191	
317P	112,3,1,3,8,0,0,1,0,2,0,3,0,4,0,5,0,6,0,7,0,8,0,7,5,0.870857,	317P	192		317P	192	
317P	7.15256E-07,-0.120858,11.5,-0.249078,-2.86102E-06,-9.19183E-04,	317P	193		317P	193	
317P	0.0,0.0,0.0,0.0,8.25,0.508285,-0.362573,0.104289,11.25,	317P	194		317P	194	
317P	-0.251841,-2.76041E-03,4.60148E-03,0.0,0.0,0.0,0.0,8.5,	317P	195		317P	195	
317P	0.0960054,-0.0497065,-0.0462993,11.0,-0.243557,0.011044,	317P	196		317P	196	
317P	-0.0174875,0.0,0.0,0.0,0.0,8.5,-0.142305,-0.186604,0.0809096,	317P	197		317P	197	
317P	10.75,-0.273932,-0.0414186,0.065352,0.0,0.0,0.0,8.25,	317P	198		317P	198	
317P	-0.276785,0.0541244,-0.0273385,10.5,-0.160713,0.154637,	317P	199		317P	199	
317P	6.07554E-03,0.0,0.0,0.0,0.0,8.0,-0.250552,-0.0278912,0.0284429,	317P	200		317P	200	
317P	10.5,0.166788,0.172864,-0.089653,0.0,0.0,0.0,7.75,-0.221006,	317P	201		317P	201	
317P	0.0574377,0.163568,10.75,0.243557,-0.0960951,0.102539,0.0,0.0,	317P	202		317P	202	
317P	0.0,0.0,7.75,0.384573,0.548141,-0.182714,11.0,0.358984,0.211522,	317P	203		317P	203	
317P	-0.070507,0.0,0.0,0.0,0.0,8.5,0.932714,-1.40071E-06,-1.09628,	317P	204		317P	204	
317P	11.5,0.570508,2.87592E-06,-0.423042,0.0,0.0,0.0,0.0;	317P	205		317P	205	
319P	126,10,7,0,0,1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1,0,2,0,3,0,	319P	206		319P	206	
319P	4,0,4,0,4,0,4,0,4,0,4,0,4,0,1,0,1,0,1,0,1,0,1,0,1,0,1,0,	319P	207		319P	207	
319P	1,0,1,0,1,0,12,0,8,5,-0.433012,11.8837,8.5,-0.433012,11.648,	319P	208		319P	208	
319P	8.53158,-0.378307,11.3681,8.66514,-0.146989,11.3783,8.95908,	319P	209		319P	209	
319P	0.362137,12.0,9.20586,0.789574,12.6217,8.95908,0.362144,12.6319,	319P	210		319P	210	
319P	8.66513,-0.146992,12.352,8.53158,-0.378309,12.1163,8.5,	319P	211		319P	211	
319P	-0.433012,12.0,8.5,-0.433012,0.0,4.0;	319P	212		319P	212	
319P	0,10,7,0,0,1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,	319P	213		319P	213	
321P	4,0,4,0,4,0,4,0,4,0,4,0,4,0,1,0,1,0,1,0,1,0,1,0,1,0,1,0,	321P	214		321P	214	
321P	1,0,1,0,1,0,16,5,9,25,0,0,16.4418,9.25,0,0,16.324,9.21842,0.0,	321P	215		321P	215	
321P	16.184,9.08486,0.0,16.1892,8.79092,0.0,16.5,8.54414,0.0,16.8108,	321P	216		321P	216	
321P	8.79091,0.0,16.816,9.08487,0.0,16.676,9.21842,0.0,16.5582,9.25,	321P	217		321P	217	
321P	0,0,16.5,9.25,0.0,0,4.0;	321P	218		321P	218	
323P	0,10,7,0,0,1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,	323P	219		323P	219	
323P	4,0,4,0,4,0,4,0,4,0,4,0,4,0,1,0,1,0,1,0,1,0,1,0,1,0,1,0,	323P	220		323P	220	
323P	1,0,1,0,1,0,14,0,9,5,0,0,13.8837,9.5,0,0,13.648,9.43683,0.0,	323P	221		323P	221	
323P	13.3681,9.16973,0.0,13.3783,8.58184,0.0,14.0,8.08828,0.0,	323P	222		323P	222	
323P	14.6217,8.58184,0.0,14.6319,9.16973,0.0,14.352,9.43683,0.0,	323P	223		323P	223	
323P	14.1163,9.5,0.0,14.0,9.5,0.0,0,4.0;	323P	224		323P	224	
325P	126,7,5,0,0,1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,	325P	225		325P	225	
325P	3,0,3,0,1,0,1,0,1,0,1,0,1,0,1,0,1,0,1,0,1,0,1,0,1,0,1,0,	325P	226		325P	226	
325P	9.12841,0.0,5.56363,9.30454,0.0,5.78636,9.32671,0.0,6.21364,	325P	227		325P	227	
325P	8.9858,0.0,6.43636,8.89545,0.0,6.49394,8.94659,0.0,6.5,9.0,0.0,	325P	228		325P	228	
325P	0,0,3.0;	325P	229		325P	229	
327P	0,3,1,3,9,0,0,1,0,2,0,3,0,4,0,5,0,6,0,7,0,8,0,9,0,6,5,	327P	230		327P	230	
327P	-0.049942,-7.15256E-07,-2.09272E-03,7.125,-0.0298276,	327P	231		327P	231	
327P	-2.14577E-06,2.61668E-03,0.499997,5.72205E-06,4.47035E-08,	327P	232		327P	232	
327P	-1.43299E-06,6.44797,-0.0562216,-6.27887E-03,-2.88339E-03,	327P	233		327P	233	
327P	7.09779,-0.0219818,7.84791E-03,2.93299E-03,0.500001,1.51247E-06,	327P	234		327P	234	
327P	-4.25428E-04,1.9744E-06,6.38258,-0.0774295,-0.0149291,	327P	235		327P	235	
327P	2.79427E-04,7.08658,2.51293E-03,0.0166469,1.67457E-03,0.5,	327P	236		327P	236	
327P	-1.07288E-06,1.66893E-06,-6.75519E-07,6.2905,-0.106449,	327P	237		327P	237	
327P	-0.0140908,-9.71365E-03,7.10742,0.0408304,0.0216706,3.77202E-03,	327P	238		327P	238	
327P	0.5,2.38419E-07,-3.57628E-07,1.19209E-07,6.16025,-0.163772,	327P	239		327P	239	
327P	-0.0432317,0.0174736,7.17369,0.0954876,0.0329866,-0.0167644,0.5,	327P	240		327P	240	
327P	-1.19209E-07,0.0,4.96705E-08,5.97072,-0.197814,9.18913E-03,	327P	241		327P	241	









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 212,1.1.0.55,0.5,1,1.5708,0.0,0.17.75,13.25,0.0,1HA;  
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593P	462	214 F 1	leader - wedge
593P	463	212 F 0	text "A" for 106 Form 40
595P	464	212 F 0	text for 228 Form 3
597P	465	106 F 63	simple closed area for 228 Form 3
599P	466	228 F 3	symbol - feature control
601P	467	212 F 0	note - simple horizontal
603P	468	214 F 2	leader - triangle
605P	469		
607P	470	214 F 3	leader - filled triangle
609P	471	214 F 4	leader - no arrow
611P	472	214 F 5	leader - circle
613P	473	214 F 6	leader - filled circle
615P	474		
617P	475	214 F 9	leader - slash
619P	476		
621P	477	214 F 8	leader - filled rectangle
623P	478		
625P	479		
627P	480		
629P	481		
631P	482		
633P	483		
635P	484		
637P	485		
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683P	510		
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691P	514		
693P	515		
695P	516		

697P	214 F 10	leader - integral sign
697P	214 F 10	leader - integral sign
699P	212 F 0	text for 210
701P	214 F 2	leader for 210
703P	210	general label
705P	212 F 0	text for 228 Form 1
707P	106 F 63	simple closed area for 228 Form 1
709P	228 F 1	symbol - datum feature
711P	214 F 2	leader for 228 Form 2
713P	212 F 0	text for 228 Form 2
715P	212 F 0	identifier for 100
717P	212 F 0	text for 228 Form 0
719P	212 F 0	identifier for 102
721P	212 F 0	identifier for 104 Form 0
723P	212 F 0	identifier for 104 Form 1
725P	212 F 0	identifier for 104 Form 2
727P	212 F 0	identifier for 104 Form 3
729P	212 F 0	identifier for 106 Form 11
731P	212 F 0	identifier for 106 Form 12
733P	212 F 0	identifier for 106 Form 20
735P	212 F 0	identifier for 106 Form 21
737P	212 F 0	identifier for 106 Form 31
739P	212 F 0	identifier for 106 Form 32
741P	212 F 0	identifier for 106 Form 33
743P	212 F 0	identifier for 106 Form 34
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34);	753P	572	212 F 0	Identifier for 106 Form 35
212,2,10,0.77,0.07,1,1.5708,0.0,0.0,9.615,12.25,0.0,10HSECTION 3	755P	573		
5,13,0.917,0.07,1,1.5708,0.0,0.0,9.5415,12.145,0.0,13H(106 FORM	755P	574		
35);	755P	575		
212,2,10,0.77,0.07,1,1.5708,0.0,0.0,11.615,12.25,0.0,10HSECTION	757P	576	212 F 0	Identifier for 106 Form 36
36,13,0.917,0.07,1,1.5708,0.0,0.0,11.5415,12.145,0.0,13H(106 FOR	757P	577		
M 36);	757P	578		
212,2,10,0.77,0.07,1,1.5708,0.0,0.0,13.615,12.25,0.0,10HSECTION	759P	579	212 F 0	Identifier for 106 Form 37
37,13,0.917,0.07,1,1.5708,0.0,0.0,13.5415,12.145,0.0,13H(106 FOR	759P	580		
M 37);	759P	581		
212,2,10,0.777,0.07,1,1.5708,0.0,0.0,15.6115,12.25,0.0,10HSECTION	761P	582	212 F 0	Identifier for 106 Form 38
N 38,13,0.924,0.07,1,1.5708,0.0,0.0,15.538,12.145,0.0,13H(106 FO	761P	583		
RM 38);	761P	584		
212,2,12,0.924,0.07,1,1.5708,0.0,0.0,17.538,12.25,0.0,12HWITNESS	763P	585	212 F 0	Identifier for 106 Form 40
LINE,13,0.917,0.07,1,1.5708,0.0,0.0,17.5415,12.145,0.0,13H(106	763P	586		
FORM 40);	763P	587		
212,2,18,1.414,0.07,1,1.5708,0.0,0.0,19.293,12.25,0.0,18HSIMPLE	765P	588	212 F 0	Identifier for 106 Form 63
CLOSED AREA,13,0.917,0.07,1,1.5708,0.0,0.0,19.5415,12.145,0.0,	765P	589		
13H(106 FORM 63);	765P	590		
212,2,15,1.211,0.07,1,1.5708,0.0,0.0,1.3945,10.25,0.0,15HUNBOUND	767P	591	212 F 0	Identifier for 108 Form 0
ED PLANE,12,0.847,0.07,1,1.5708,0.0,0.0,1.5765,10.145,0.0,12H(10	767P	592		
8 FORM 0);	767P	593		
212,2,13,1.043,0.07,1,1.5708,0.0,0.0,3.4785,10.25,0.0,13HBOUNDED	769P	594	212 F 0	Identifier for 108 Form 1
PLANE,12,0.819,0.07,1,1.5708,0.0,0.0,3.5905,10.145,0.0,12H(108	769P	595		
FORM 1);	769P	596		
212,1,10,0.63,0.07,1,1.5708,0.0,0.0,5.685,10.25,0.0,10HLINE (110	771P	597	212 F 0	Identifier for 110
);	771P	598		
212,2,17,1.33,0.07,1,1.5708,0.0,0.0,7.335,10.25,0.0,17HPARAMETRI	773P	599	212 F 0	Identifier for 112
C SPLINE,11,0.728,0.07,1,1.5708,0.0,0.0,7.636,10.145,0.0,11HCURV	773P	600		
E (112);	773P	601		
212,2,17,1.33,0.07,1,1.5708,0.0,0.0,9.335,10.25,0.0,17HPARAMETRI	775P	602	212 F 0	Identifier for 114
C SPLINE,13,0.896,0.07,1,1.5708,0.0,0.0,9.552,10.145,0.0,13HSURF	775P	603		
ACE (114);	775P	604		
212,1,11,0.707,0.07,1,1.5708,0.0,0.0,11.6465,10.25,0.0,11HPOINT	777P	605	212 F 0	Identifier for 116
(116);	777P	606		
212,2,19,1.498,0.07,1,1.5708,0.0,0.0,13.251,10.25,0.0,19HRULED S	779P	607	212 F 0	Identifier for 118 Form 0
URFACE - ARC,19,1.372,0.07,1,1.5708,0.0,0.0,13.314,10.145,0.0,	779P	608		
19HLENGTH (118 FORM 0);	779P	609		
212,2,16,1.253,0.07,1,1.5708,0.0,0.0,15.3735,10.25,0.0,16HRULED	781P	610	212 F 0	Identifier for 118 Form 1
SURFACE - ,23,1.659,0.07,1,1.5708,0.0,0.0,15.1705,10.145,0.0,23H	781P	611		
PARAMETRIC (118 FORM 1);	781P	612		
212,2,11,0.868,0.07,1,1.5708,0.0,0.0,17.566,10.25,0.0,11HSURFACE	783P	613	212 F 0	Identifier for 120
OF ,16,1.148,0.07,1,1.5708,0.0,0.0,17.426,10.145,0.0,16HREVOLUT	783P	614		
ION (120);	783P	615		
212,2,18,1.435,0.07,1,1.5708,0.0,0.0,19.2825,10.25,0.0,18HTABULA	785P	616	212 F 0	Identifier for 122
TED CYLINDER,5,0.273,0.07,1,1.5708,0.0,0.0,19.8635,10.145,0.0,5H	785P	617		
(122);	785P	618		
212,2,14,1.141,0.07,1,1.5708,0.0,0.0,1.4295,8.25,0.0,14HTRANSFOR	787P	619	212 F 0	Identifier for 124 Form 0
MATION,23,1.617,0.07,1,1.5708,0.0,0.0,1.1915,8.145,0.0,23HMATRIX	787P	620		
D-1 (124 FORM 0);	787P	621		
212,2,14,1.141,0.07,1,1.5708,0.0,0.0,3.4295,8.25,0.0,14HTRANSFOR	789P	622	212 F 0	Identifier for 124 Form 1
MATION,24,1.666,0.07,1,1.5708,0.0,0.0,3.167,8.145,0.0,24HMATRIX	789P	623		
D-1 (124 FORM 1);	789P	624		
212,2,17,1.316,0.07,1,1.5708,0.0,0.0,5.342,8.25,0.0,17HTRANSFOR	791P	625	212 F 0	Identifier for 126 Form 0
B-SPLINE,18,1.309,0.07,1,1.5708,0.0,0.0,5.3455,8.145,0.0,18HCURV	791P	626		

E (126 FORM 0):  
 212,2,17,1.316,0.07,1,1.5708,0.0,0.0,7.342,8.25,0.0,17HRATIONAL  
 B-SPLINE,20,1.477,0.07,1,1.5708,0.0,0.0,7.2615,8.145,0.0,20HSURF  
 ACE (128 FORM 0):  
 212,2,14,1.057,0.07,1,1.5708,0.0,0.0,9.4715,8.25,0.0,14HRBS RIGH  
 T CIRC,21,1.533,0.07,1,1.5708,0.0,0.0,9.2335,8.145,0.0,21HCYLIND  
 ER (128 FORM 2):  
 212,1,21,1.547,0.07,1,1.5708,0.0,0.0,11.2265,8.25,0.0,21HRBS CON  
 E (128 FORM 3):  
 212,2,10,0.791,0.07,1,1.5708,0.0,0.0,13.6045,8.25,0.0,10HRBS SPI  
 RE,12,0.84,0.07,1,1.5708,0.0,0.0,13.58,8.145,0.0,12H(128 FORM 4  
 );  
 212,2,9,0.721,0.07,1,1.5708,0.0,0.0,15.6395,8.25,0.0,9HRBS TORUS  
 12,0.84,0.07,1,1.5708,0.0,0.0,15.58,8.145,0.0,12H(128 FORM 5):  
 212,2,11,0.882,0.07,1,1.5708,0.0,0.0,17.559,8.25,0.0,11HRBS GENE  
 RAL,22,1.61,0.07,1,1.5708,0.0,0.0,17.195,8.145,0.0,22HQUADRATIC  
 (128 FORM 9):  
 212,2,12,0.973,0.07,1,1.5708,0.0,0.0,19.5135,8.25,0.0,12HOFFSET  
 CURVE,5,0.287,0.07,1,1.5708,0.0,0.0,19.8565,8.145,0.0,5H(130):  
 212,2,14,1.134,0.07,1,1.5708,0.0,0.0,1.433,6.25,0.0,14HOFFSET SU  
 RFACE,5,0.287,0.07,1,1.5708,0.0,0.0,1.8565,6.145,0.0,5H(140):  
 212,2,19,1.512,0.07,1,1.5708,0.0,0.0,3.244,6.25,0.0,19HCURVE ON  
 PARAMETRIC,13,0.917,0.07,1,1.5708,0.0,0.0,3.5415,6.145,0.0,13HSU  
 RFACE (142):  
 212,2,18,1.449,0.07,1,1.5708,0.0,0.0,5.2755,6.25,0.0,18HTRIMMED  
 PARAMETRIC,13,0.924,0.07,1,1.5708,0.0,0.0,5.538,6.145,0.0,13HSUR  
 FACE (144):  
 212,2,17,1.33,0.07,1,1.5708,0.0,0.0,7.335,6.25,0.0,17HANGULAR DI  
 MENSION,5,0.301,0.07,1,1.5708,0.0,0.0,7.8495,6.145,0.0,5H(202):  
 212,2,18,1.407,0.07,1,1.5708,0.0,0.0,9.2965,6.25,0.0,18HDIAMETER  
 DIMENSION,5,0.308,0.07,1,1.5708,0.0,0.0,9.846,6.145,0.0,5H(206)  
 ;  
 212,1,19,1.393,0.07,1,1.5708,0.0,0.0,11.3035,6.25,0.0,19HGENERAL  
 LABEL (210):  
 212,2,21,1.652,0.07,1,1.5708,0.0,0.0,13.174,6.25,0.0,21HGENERAL  
 NOTE - SIMPLE,12,0.826,0.07,1,1.5708,0.0,0.0,13.587,6.145,0.0,  
 12H(212 FORM 0):  
 212,2,17,1.316,0.07,1,1.5708,0.0,0.0,15.342,6.25,0.0,17HNOTE - D  
 UAL STACK,12,0.798,0.07,1,1.5708,0.0,0.0,15.601,6.145,0.0,12H(21  
 2 FORM 1):  
 212,2,20,1.575,0.07,1,1.5708,0.0,0.0,17.2125,6.25,0.0,20HNOTE -  
 IMBEDDED FONT,19,1.365,0.07,1,1.5708,0.0,0.0,17.3175,6.145,0.0,  
 19HCHANGE (212 FORM 2):  
 212,2,18,1.407,0.07,1,1.5708,0.0,0.0,19.2965,6.25,0.0,18HNOTE -  
 SUPERScript,12,0.826,0.07,1,1.5708,0.0,0.0,19.587,6.145,0.0,12H(  
 212 FORM 3):  
 212,2,16,1.246,0.07,1,1.5708,0.0,0.0,1.377,4.25,0.0,16HNOTE - SU  
 BSCRIPT,12,0.826,0.07,1,1.5708,0.0,0.0,1.587,4.145,0.0,12H(212 F  
 ORM 4):  
 212,2,16,1.26,0.07,1,1.5708,0.0,0.0,3.37,4.25,0.0,16HNOTE - SUPE  
 R/SUB,19,1.351,0.07,1,1.5708,0.0,0.0,3.3245,4.145,0.0,19HSCRIPT  
 (212 FORM 5):  
 212,2,18,1.4,0.07,1,1.5708,0.0,0.0,5.3,4.25,0.0,18HNOTE - MULTI  
 STACK,22,1.603,0.07,1,1.5708,0.0,0.0,5.1985,4.145,0.0,22HLEFT JU  
 ST (212 FORM 6):

791P	627	212 F 0	Identifier for 128 Form 0
793P	628		
793P	629		
793P	630		
795P	631	212 F 0	Identifier for 128 Form 2
795P	632		
795P	633		
797P	634	212 F 0	Identifier for 128 Form 3
797P	635		
799P	636	212 F 0	Identifier for 128 Form 4
799P	637		
799P	638		
801P	639	212 F 0	Identifier for 128 Form 5
801P	640		
803P	641	212 F 0	Identifier for 128 Form 9
803P	642		
803P	643		
805P	644	212 F 0	Identifier for 130
805P	645		
807P	646	212 F 0	Identifier for 140
807P	647		
809P	648	212 F 0	Identifier for 142
809P	649		
809P	650		
811P	651	212 F 0	Identifier for 144
811P	652		
811P	653		
813P	654	212 F 0	Identifier for 202
813P	655		
815P	656	212 F 0	Identifier for 206
815P	657		
815P	658		
817P	659	212 F 0	Identifier for 210
817P	660		
819P	661	212 F 0	Identifier for 212 Form 0
819P	662		
819P	663		
821P	664	212 F 0	Identifier for 212 Form 1
821P	665		
821P	666		
823P	667	212 F 0	Identifier for 212 Form 2
823P	668		
823P	669		
825P	670	212 F 0	Identifier for 212 Form 3
825P	671		
825P	672		
827P	673	212 F 0	Identifier for 212 Form 4
827P	674		
827P	675		
829P	676	212 F 0	Identifier for 212 Form 5
829P	677		
829P	678		
831P	679	212 F 0	Identifier for 212 Form 6
831P	680		
831P	681		

212, 2, 18, 1.4, 0.07, 1, 1.5708, 0.0, 0.0, 7.3, 4.25, 0.0, 10HNOTE - MULTI STACK, 22, 1.603, 0.07, 1, 1.5708, 0.0, 0.0, 7.1985, 4.145, 0.0, 22HCENT JU ST (212 FORM 7);	833P	582	212 F 0	Identifier for 212 Form 7
212, 2, 18, 1.4, 0.07, 1, 1.5708, 0.0, 0.0, 9.3, 4.25, 0.0, 10HNOTE - MULTI STACK, 23, 1.652, 0.07, 1, 1.5708, 0.0, 0.0, 9.174, 4.145, 0.0, 23HRIGHT JU ST (212 FORM 8);	833P	583	212 F 0	Identifier for 212 Form 8
212, 2, 13, 1.015, 0.07, 1, 1.5708, 0.0, 0.0, 11.4925, 4.25, 0.0, 13HNOTE - SIMPLE, 23, 1.652, 0.07, 1, 1.5708, 0.0, 0.0, 11.174, 4.145, 0.0, 23HFRACACTI ON (212 FORM 100);	833P	584	212 F 0	Identifier for 212 Form 100
212, 2, 17, 1.316, 0.07, 1, 1.5708, 0.0, 0.0, 13.342, 4.25, 0.0, 17HNOTE - D UAL STACK, 23, 1.624, 0.07, 1, 1.5708, 0.0, 0.0, 13.188, 4.145, 0.0, 23HFERA CTION (212 FORM 101);	833P	585	212 F 0	Identifier for 212 Form 101
212, 2, 18, 1.442, 0.07, 1, 1.5708, 0.0, 0.0, 15.279, 4.25, 0.0, 18HNOTE - F ONT/DOUBLE, 23, 1.645, 0.07, 1, 1.5708, 0.0, 0.0, 15.1775, 4.145, 0.0, 23HE ACTION (212 FORM 102);	833P	586	212 F 0	Identifier for 212 Form 102
212, 2, 16, 1.26, 0.07, 1, 1.5708, 0.0, 0.0, 17.37, 4.25, 0.0, 16HNOTE - SUP ER/SUB, 23, 1.652, 0.07, 1, 1.5708, 0.0, 0.0, 17.174, 4.145, 0.0, 23HFRACACTI ON (212 FORM 105);	833P	587	212 F 0	Identifier for 212 Form 105
212, 2, 14, 1.106, 0.07, 1, 1.5708, 0.0, 0.0, 19.447, 4.25, 0.0, 14HLEADER - WEDGE, 12, 0.805, 0.07, 1, 1.5708, 0.0, 0.0, 19.5975, 4.145, 0.0, 12H(214 FORM 1);	833P	588	212 F 0	Identifier for 214 Form 1
212, 2, 17, 1.323, 0.07, 1, 1.5708, 0.0, 0.0, 1.3385, 2.25, 0.0, 17HLEADER - TRIANGLE, 12, 0.826, 0.07, 1, 1.5708, 0.0, 0.0, 1.587, 2.145, 0.0, 12H(214 FORM 2);	833P	589	212 F 0	Identifier for 214 Form 2
212, 2, 15, 1.162, 0.07, 1, 1.5708, 0.0, 0.0, 3.419, 2.25, 0.0, 15HLEADER - FILLED, 21, 1.526, 0.07, 1, 1.5708, 0.0, 0.0, 3.237, 2.145, 0.0, 21HTRIANG LE (214 FORM 3);	833P	590	212 F 0	Identifier for 214 Form 3
212, 2, 15, 1.169, 0.07, 1, 1.5708, 0.0, 0.0, 7.4155, 2.25, 0.0, 15HLEADER - CIRCLE, 12, 0.833, 0.07, 1, 1.5708, 0.0, 0.0, 7.5835, 2.145, 0.0, 12H(214 FORM 5);	833P	591	212 F 0	Identifier for 214 Form 5
212, 2, 14, 1.085, 0.07, 1, 1.5708, 0.0, 0.0, 9.4575, 2.25, 0.0, 14HLEADER - FILLED, 19, 1.365, 0.07, 1, 1.5708, 0.0, 0.0, 9.3175, 2.145, 0.0, 19HCIRCLE (212 FORM 6);	833P	592	212 F 0	Identifier for 214 Form 6
212, 2, 18, 1.435, 0.07, 1, 1.5708, 0.0, 0.0, 11.2825, 2.25, 0.0, 18HLEADER - RECTANGLE, 12, 0.833, 0.07, 1, 1.5708, 0.0, 0.0, 11.5835, 2.145, 0.0, 12H (214 FORM 7);	833P	593	212 F 0	Identifier for 214 Form 7
212, 2, 15, 1.162, 0.07, 1, 1.5708, 0.0, 0.0, 13.419, 2.25, 0.0, 15HLEADER - FILLED, 22, 1.645, 0.07, 1, 1.5708, 0.0, 0.0, 13.1775, 2.145, 0.0, 22HRECT ANGLE (214 FORM 8);	833P	594	212 F 0	Identifier for 214 Form 8
212, 2, 14, 1.085, 0.07, 1, 1.5708, 0.0, 0.0, 15.4575, 2.25, 0.0, 14HLEADER - SLASH, 12, 0.833, 0.07, 1, 1.5708, 0.0, 0.0, 15.5835, 2.145, 0.0, 12H(214 FORM 9);	833P	595	212 F 0	Identifier for 214 Form 9
212, 2, 17, 1.323, 0.07, 1, 1.5708, 0.0, 0.0, 17.3385, 2.25, 0.0, 17HLEADER - INTEGRAL, 18, 1.239, 0.07, 1, 1.5708, 0.0, 0.0, 17.3805, 2.145, 0.0, 18H IGN (214 FORM 10);	833P	596	212 F 0	Identifier for 214 Form 10
212, 2, 13, 1.022, 0.07, 1, 1.5708, 0.0, 0.0, 19.469, 2.25, 0.0, 13HLEADER - OPEN, 22, 1.547, 0.07, 1, 1.5708, 0.0, 0.0, 19.2265, 2.145, 0.0, 22HTRIANG LE (214 FORM 11);	833P	597	212 F 0	Identifier for 214 Form 11
212, 2, 16, 1.232, 0.07, 1, 1.5708, 0.0, 0.0, 1.384, 0.25, 0.0, 16HLINEAR DI MENSION, 5, 0.28, 0.07, 1, 1.5708, 0.0, 0.0, 1.86, 0.145, 0.0, 5H(216);	833P	598	212 F 0	Identifier for 216
212, 2, 18, 1.393, 0.07, 1, 1.5708, 0.0, 0.0, 3.3035, 0.25, 0.0, 18HORDINATE DIMENSION, 5, 0.287, 0.07, 1, 1.5708, 0.0, 0.0, 3.8565, 0.145, 0.0, 5H(218 FORM 12);	833P	599	212 F 0	Identifier for 218

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);
212,2,15,1,148,0.07,1,1.5708,0.0,0.0,5.426,0.25,0.0,0.15HPPOINT DIM
ENSION,5,0.301,0.07,1,1.5708,0.0,0.0,5.8495,0.145,0.0,5H(220);
212,2,16,1,218,0.07,1,1.5708,0.0,0.0,7.391,0.25,0.0,0.16HRADIUS DI
MENSION,5,0.294,0.07,1,1.5708,0.0,0.0,7.853,0.145,0.0,5H(222);
212,2,16,1,288,0.07,1,1.5708,0.0,0.0,9.356,0.25,0.0,16HSYMBOL -
GENERAL,12,0.861,0.07,1,1.5708,0.0,0.0,9.5695,0.145,0.0,12H(228
FORM 0);
212,2,14,1,134,0.07,1,1.5708,0.0,0.0,11.433,0.25,0.0,14HSYMBOL -
DATUM,20,1.477,0.07,1,1.5708,0.0,0.0,11.2615,0.145,0.0,20HFEATU
RE (228 FORM 1);
212,2,14,1,134,0.07,1,1.5708,0.0,0.0,13.433,0.25,0.0,14HSYMBOL -
DATUM,19,1.407,0.07,1,1.5708,0.0,0.0,13.2965,0.145,0.0,19HTARGE
T (228 FORM 2);
212,2,16,1,295,0.07,1,1.5708,0.0,0.0,15.3525,0.25,0.0,16HSYMBOL
- FEATURE,20,1.512,0.07,1,1.5708,0.0,0.0,15.244,0.145,0.0,20HCON
TROL (228 FORM 3);
212,2,14,1,099,0.07,1,1.5708,0.0,0.0,17.4505,0.25,0.0,14HSECTION
ED AREA,5,0.308,0.07,1,1.5708,0.0,0.0,17.846,0.145,0.0,5H(230);
212,5,17,1,746,0.09,1,1.5708,0.0,0.0,19.127,1.0,0.0,17HCAALS TEST
NETWORK,11,1.098,0.09,1,1.5708,0.0,0.0,19.451,0.865,0.0,11HMIL-
D-28000,8,0.738,0.09,1,1.5708,0.0,0.0,19.631,0.73,0.0,8HCLASS II
,17,1.755,0.09,1,1.5708,0.0,0.0,19.1225,0.595,0.0,17HREFERENCE D
RAWING,8,0.819,0.09,1,1.5708,0.0,0.0,19.591,0.46,0.0,8HN-ENTITY;
212,2,4,0.431667,0.125,1,1.5708,0.0,0.0,15.5,7.125,0.0,4HDUAL,5,
0.54,0.125,1,1.5708,0.0,0.0,15.5,6.9375,0.0,5HSTACK;
0,1,7,0.72,0.125,1,1.5708,0.0,0.0,17.5,7.125,0.0,7HIM ED;
0,1,5,0.53,0.125,1,1.5708,0.0,0.0,17.5,7.125,0.0,5H BED;
212,2,1,0.113333,0.125,1,1.5708,0.0,0.0,19.5,7.125,0.0,1HS,5,
0.558333,0.125,1,1.5708,0.0,0.0,19.61333,7.21875,0.0,5HSUPER;
212,2,1,0.113333,0.125,1,1.5708,0.0,0.0,1.5,1.5,1.5,0.0,1HS,3,
0.343333,0.125,1,1.5708,0.0,0.0,1.613333,5.03125,0.0,3HSUB;
212,3,1,0.113333,0.125,1,1.5708,0.0,0.0,3.5,1.5,1.5,0.0,1HS,5,
0.558333,0.125,1,1.5708,0.0,0.0,3.613333,5.21875,0.0,5HSUPER,3,
0.343333,0.125,1,1.5708,0.0,0.0,3.613333,5.03125,0.0,3HSUB;
212,3,1,0.116667,0.125,1,1.5708,0.0,0.0,5.5,5.25,0.0,1HM,5,0.54,
0.125,1,1.5708,0.0,0.0,5.5,5.0625,0.0,5HSTACK,4,0.423333,0.125,
1,1.5708,0.0,0.0,5.5,4.875,0.0,4HLEFT;
212,3,1,0.116667,0.125,1,1.5708,0.0,0.0,7.94167,5.25,0.0,1HM,5,
0.54,0.125,1,1.5708,0.0,0.0,7.73,5.0625,0.0,5HSTACK,6,0.645,
0.125,1,1.5708,0.0,0.0,7.6775,4.875,0.0,6HCENTER;
212,3,1,0.116667,0.125,1,1.5708,0.0,0.0,10.3833,5.25,0.0,1HM,5,
0.54,0.125,1,1.5708,0.0,0.0,9.96,5.0625,0.0,5HSTACK,5,0.518333,
0.125,1,1.5708,0.0,0.0,9.98167,4.875,0.0,5HRIGHT;
212,5,2,0.173333,0.125,1,1.5708,0.0,0.0,11.5,5.25,0.0,2H ,4,
0.436667,0.125,1,1.5708,0.0,0.0,11.6733,5.15625,0.0,4HFRAC,6,
0.613333,0.125,1,1.5708,0.0,0.0,11.5,5.0625,0.0,6HS ----,2,
0.173333,0.125,1,1.5708,0.0,0.0,11.5,4.875,0.0,2H ,4,0.405,
0.125,1,1.5708,0.0,0.0,11.6733,4.96875,0.0,4HTION;
212,10,7,0.606667,0.125,1,1.5708,0.0,0.0,13.5,5.5,0.0,7H
2,0.231667,0.125,1,1.5708,0.0,0.0,14.1067,5.40625,0.0,2HITO,9,
0.915,0.125,1,1.5708,0.0,0.0,13.5,5.3125,0.0,9HDUAL ----,8,
0.693333,0.125,1,1.5708,0.0,0.0,13.5,5.125,0.0,8H
0.111667,0.125,1,1.5708,0.0,0.0,14.1933,5.21875,0.0,1HP,8,
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869P	737	212 F 0	Identifier for 220
871P	738	212 F 0	Identifier for 220
873P	739	212 F 0	Identifier for 222
873P	740	212 F 0	Identifier for 228 Form 0
873P	741	212 F 0	Identifier for 228 Form 0
875P	742	212 F 0	Identifier for 228 Form 0
875P	743	212 F 0	Identifier for 228 Form 0
875P	744	212 F 0	Identifier for 228 Form 1
877P	745	212 F 0	Identifier for 228 Form 1
877P	746	212 F 0	Identifier for 228 Form 2
877P	747	212 F 0	Identifier for 228 Form 2
879P	748	212 F 0	Identifier for 228 Form 2
879P	749	212 F 0	Identifier for 228 Form 2
879P	750	212 F 0	Identifier for 228 Form 3
881P	751	212 F 0	Identifier for 228 Form 3
881P	752	212 F 0	Identifier for 228 Form 3
881P	753	212 F 0	Identifier for 228 Form 3
883P	754	212 F 0	Identifier for 230
883P	755	212 F 0	Identifier for 230
885P	756	212 F 0	Identifier for 230
885P	757	212 F 0	Identifier for 230
885P	758	212 F 0	Identifier for 230
885P	759	212 F 0	Identifier for 230
885P	760	212 F 0	Identifier for 230
887P	761	212 F 1	note - dual stack
887P	762	212 F 1	note - dual stack
889P	763	212 F 1	note - dual stack
891P	764	212 F 3	note - superscript
893P	765	212 F 3	note - superscript
893P	766	212 F 4	note - subscript
895P	767	212 F 4	note - subscript
895P	768	212 F 5	note - super/subscript
897P	769	212 F 5	note - super/subscript
897P	770	212 F 5	note - super/subscript
897P	771	212 F 6	note - multi stack left justified
899P	772	212 F 6	note - multi stack left justified
899P	773	212 F 6	note - multi stack left justified
899P	774	212 F 7	note - multi stack center justified
901P	775	212 F 7	note - multi stack center justified
901P	776	212 F 7	note - multi stack center justified
901P	777	212 F 7	note - multi stack center justified
903P	778	212 F 8	note - multi stack right justified
903P	779	212 F 8	note - multi stack right justified
903P	780	212 F 8	note - multi stack right justified
905P	781	212 F 100	note - simple fraction
905P	782	212 F 100	note - simple fraction
905P	783	212 F 100	note - simple fraction
905P	784	212 F 100	note - simple fraction
905P	785	212 F 100	note - simple fraction
907P	786	212 F 101	note - dual stack fraction
907P	787	212 F 101	note - dual stack fraction
907P	788	212 F 101	note - dual stack fraction
907P	789	212 F 101	note - dual stack fraction
907P	790	212 F 101	note - dual stack fraction
907P	791	212 F 101	note - dual stack fraction



212 F 105	note - super/sub fraction
792	
797P	
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797P	
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799P	
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799P	
843	
799P	
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799P	
845	
799P	
846	
799P	
212 F 105	note - super/sub fraction
110	line for 120
100	circular arc for 120
120	surface of revolution
110	line for 128 Form 4
100	circular arc for 122
122	tabulated cylinder
128 F 0	rational b-spline surface





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 -2.14577E-06, 1.07288E-06, 0.300002, -5.36442E-06, 1.07288E-05, 961  
 -6.79493E-06, -0.25, 2.86102E-06, -5.72205E-06, 3.8147E-06, 1.0, -1.0, 962  
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 -2.25306E-05, 1.50204E-05, -0.0833325, -3.21865E-06, 9.65595E-06, 979  
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parametric spline surface

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 979P 1114  
 981P 1115  
 983P 1116  
 985P 1117  
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 989P 1119  
 991P 1120  
 993P 1121

circular arc for surface to be offset by 140  
 line for surface to be offset by 140  
 ruled surface to be offset by 140  
 circular arc for surface for 140  
 line for surface for 140  
 ruled surface for 140

406, 1, 7INCH; 1122	995P	1122	406 F 15	drawing name
406, 2, 1, 4INCH; 1123	997P	1123	406 F 17	drawing unite
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404, 2, 35, 0, 0, 0, 0, 1063, 0, 0, 0, 0, 0, 0, 3, 995, 997, 999; 1125	1001P	1125	404	drawing
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14, 0025, 13, 5, 14, 5, 13, 0025, 14, 5, 1150	1009P	1150		
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14, 5, 12, 5025, 14, 2513, 12, 5013, 1152	1009P	1152		
13, 5013, 13, 2513, 13, 5013, 1153	1009P	1153		
13, 0013, 14, 0013, 12, 5013, 1154	1009P	1154		
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5, 5, 12, 7965, 6, 20279, 13, 5, 5, 67495, 12, 5, 6, 5, 13, 3259, 1162	1013P	1162		
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 S 36G 4D 1094P 1311

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 T 1

110 line for subfigure for 124  
 110 line for subfigure for 124  
 110 line for subfigure for 124  
 110 line for subfigure for 124  
 308 subfigure definition  
 124 F 0 transformation matrix D-1  
 408 subfigure instance for 124 Form 0  
 124 F 1 transformation matrix D--1  
 408 subfigure instance for 124 Form 1

Attachment J

L-bracket IGES File Printout

CONFORMANCE: This IGES file conforms to the MIL-D-28000 Amendment 1 Class II subset (Engineering Drawings).

CREATED BY: CALS Test Network  
Lawrence Livermore National Laboratory  
7000 East Ave., P.O. Box 808, L-542  
Livermore, CA 94550  
(415) 422-4357

DATE: 15 October 1988

PART NAME: LBRACKT

DRAWING NAME: LBRACKT

DESCRIPTION: Reference drawing named L-bracket which is comprised of all the IGES structure entities (304-410) specified in MIL-D-28000 Class II. Contact the CALS Test Network to obtain procedures for conducting the test and evaluating the results.

REVISION: C

DRAWING SIZE AND NUMBER: One C-Size

PART LEVEL SCHEME:

LEVEL	ENTITY DESCRIPTION	MODE
defaulted	definition entities	model
1	geometric entities	model
2	dimension entities	draw
3	other detailing	draw
4	subfigure entities	model

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0	3	0	0	0	0	0	0000000000
0	0	0	1	0	0	0	OD
0	4	0	0	0	0	0	0000000000
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124	0	0	0	0	0	0	0	0	0	0	0	OD	70
108	40	0	0	2	0	0	0	0	0	0	0	000010001D	71
108	0	0	0	1	0	0	0	0	0	0	0	OD	72
108	41	0	0	2	0	0	0	0	0	0	0	000010001D	73
108	0	0	0	1	0	0	0	0	0	0	0	OD	74
108	42	0	0	2	0	0	0	0	0	0	0	000010001D	75
108	0	0	0	1	0	0	0	0	0	0	0	OD	76
108	43	0	0	2	0	0	0	0	0	0	0	000010001D	77
108	0	0	0	1	0	0	0	0	0	0	0	OD	78
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124	0	0	0	1	0	0	0	0	0	0	0	OD	84
108	47	0	0	2	0	0	0	0	0	0	0	000010001D	85
108	0	0	0	1	0	0	0	0	0	0	0	OD	86
108	48	0	0	2	0	0	0	0	0	0	0	000010001D	87
108	0	0	0	1	0	0	0	0	0	0	0	OD	88
108	49	0	0	2	0	0	0	0	0	0	0	000010001D	89
108	0	0	0	1	0	0	0	0	0	0	0	OD	90
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100	107	0	1	1	343	43	000020001D	197
100	0	0	1	0	0	0	OD	198
110	108	0	1	1	343	0	000020001D	199
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100	0	0	1	0	0	0	OD	202
0	110	0	0	0	0	0	000000001D	203
0	0	0	1	0	0	0	OD	204
110	111	0	1	1	343	0	000020001D	205
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110	112	0	1	1	343	0	000020001D	207
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110	127	0	1	1	303	0	000000001D	229
110	0	0	1	0	0	0	OD	230
0	128	0	1	2	0	0	000010101D	231
0	0	5	1	0	0	0	OD	232
0	129	0	1	2	0	0	000010101D	233





212	158	0	0	0	2	0	0	000010101D	289
212	0	5	1	1	0	0	0	OD	290
214	159	0	1	1	2	0	0	000010101D	291
214	0	5	1	1	2	0	0	OD	292
214	160	0	1	1	2	0	0	000010101D	293
214	0	5	1	1	2	0	0	OD	294
106	161	0	0	0	2	0	0	000010101D	295
106	0	5	1	1	40	0	0	OD	296
106	162	0	0	0	2	0	0	000010101D	297
106	0	5	1	1	40	0	0	OD	298
216	163	0	1	1	2	0	0	000010101D	299
216	0	5	1	1	0	0	0	OD	300
106	164	0	0	0	3	0	0	000010101D	301
106	0	-325	4	31	0	0	0	OD	302
402	168	0	0	0	0	0	0	000000201D	303
402	0	0	1	3	0	0	0	OD	304
0	169	0	0	0	0	0	0	000000001D	305
0	0	0	1	0	0	0	0	OD	306
408	170	0	0	-329	303	0	0	000000001D	307
408	0	0	1	0	0	0	0	OD	308
406	171	0	0	0	0	0	0	000020001D	309
406	0	0	1	15	0	0	0	OD	310
406	172	0	0	0	0	0	0	000020001D	311
406	0	0	1	17	0	0	0	OD	312
406	173	0	0	0	0	0	0	000020001D	313
406	0	0	1	16	0	0	0	OD	314
110	174	0	-341	3	0	0	0	000010101D	315
110	0	0	1	0	0	0	0	OD	316
110	175	0	-341	3	0	0	0	000010101D	317
110	0	0	1	0	0	0	0	OD	318
110	176	0	-341	3	0	0	0	000010101D	319
110	0	0	1	0	0	0	0	OD	320
0	177	0	0	0	0	0	0	000000201D	321
0	0	0	3	0	0	0	0	OD	322
402	180	0	0	0	0	0	0	000000201D	323
402	0	0	1	15	0	0	0	OD	324
314	181	0	0	0	0	0	0	000000201D	325
314	0	0	1	0	0	0	0	OD	326
402	182	0	0	0	0	0	0	000000201D	327
402	0	0	1	4	0	0	0	OD	328
406	183	0	0	0	0	0	0	000000001D	329
406	0	0	1	1	0	0	0	OD	330
406	184	0	0	0	0	0	0	000000001D	331
406	0	0	1	3	0	0	0	OD	332
406	185	0	0	0	0	0	0	000000001D	333
406	0	0	1	3	0	0	0	OD	334
406	186	0	0	0	0	0	0	000000001D	335
406	0	0	1	3	0	0	0	OD	336
406	187	0	0	0	0	0	0	000000001D	337
406	0	0	1	3	0	0	0	OD	338
406	188	0	0	0	0	0	0	000020001D	339
406	0	0	1	5	0	0	0	OD	340
304	189	0	1	0	0	0	0	000000201D	341
304	0	0	1	2	0	0	0	OD	342
402	190	0	0	0	0	0	0	000000201D	343

Entity Number	Entity Description on L-bracket Drawing
110	line 1 for subfigure slot
100	circular arc 2 for subfigure slot
110	line 3 for subfigure slot
100	circular arc 4 for subfigure slot
110	line 5 for subfigure slot
100	circular arc 6 for subfigure slot
110	line 7 for subfigure slot
100	circular arc 8 for subfigure slot
110	line 9 for subfigure slot
110	line 10 for subfigure slot
110	line 11 for subfigure slot
110	line 12 for subfigure slot
308	subfigure definition
124 F 0	matrix for fillet
124 F 0	matrix for slot

406, 1, 3HISO;  
 124, 0, 0.707107, 0, 0.0, 0.0, -0.408248, 0.408248, 0.816497, 0.0, 0.0,  
 0.57735, -0.57735, 0.57735, 0.0;  
 108, 0, 0.707107, 0, 0.707107, 0.0, -3.0;  
 108, -0.408248, 0.408248, 0.816497, 7.0;  
 108, 0.707107, 0.707107, 0.0, 10.0;  
 108, -0.408248, 0.408248, 0.816497, -2.0;  
 410, 6, 1.0, 57.59, 61.63, 0.0, 3.303, 343, 327, 1, 1,  
 53;  
 406, 1, 4HSIDE;  
 124, 0, 0.1, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0;  
 108, 0, 0.1, 0.0, 0.0, -3.0;  
 108, 0, 0.0, 0.0, 1.0, 5.0;  
 108, 0, 0.1, 0.0, 0.0, 10.0;  
 108, 0, 0.0, 0.1, 0.0, -3.0;  
 410, 5, 1.0, 71.73, 75.77, 0.0, 2.303, 343, 1.67;  
 406, 1, 3HTOP;  
 124, 1, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0;  
 108, 1, 0.0, 0.0, 0.0, -3.0;  
 108, 0, 0.1, 0.0, 0.0, 7.0;  
 108, 1, 0.0, 0.0, 0.0, 6.0;  
 108, 0, 0.1, 0.0, 0.0, -2.0;  
 410, 4, 1.0, 85.87, 89.91, 0.0, 1.327, 1.81;  
 406, 1, 5HFRONT;  
 124, 1, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0;  
 108, 1, 0.0, 0.0, 0.0, -3.0;  
 108, 0, 0.0, 0.1, 0.0, 5.0;  
 108, 1, 0.0, 0.0, 0.0, 6.0;  
 108, 0, 0.0, 0.1, 0.0, -3.0;  
 410, 3, 1.0, 99.101, 103.105, 0.0, 1.343, 1.95;  
 110, 0, 0.0, 0.0, 0.3, 0.0, 0.0, 0.0;  
 110, 3, 0.0, 0.0, 0.3, 0.0, 0.0, 0.75;  
 110, 3, 0.0, 0.0, 0.75, 1.1, 0.0, 0.75;  
 110, 1, 0.0, 0.0, 0.85, 1.0, 0.0, 3.5;  
 110, 0, 0.4, 0.3, 5.1, 0.4, 0.3, 5;  
 110, 0, 0.0, 0.3, 5.0, 0.0, 0.0, 0.0;  
 100, 0, 0.1, 1.0, 85, 1.0, 0.85, 1.1, 0.75;  
 110, 3, 0.4, 0.0, 75, 1.1, 4.0, 0.75;  
 100, -4.0, 1.1, 0.85, 1.0, 0.85, 1.1, 0.75;  
 110, 1, 0.4, 0.0, 85, 1.0, 4.0, 3.5;  
 106, 1, 12.0, 0.5, 0.12, 63.5, 0.12, 13.5, 0.12, 0.6, 5.0, 11.94, 5.0, 11.88,  
 5.11, 38.4, 38.12, 4.88, 12.4, 94.12, 5.06, 12.5, 13.12, 5.63, 12.5;  
 110, 0, 0.4, 0.3, 5.0, 0.4, 0.0, 0.0;  
 110, 0, 0.4, 0.0, 0.3, 0.4, 0.0, 0.0;  
 110, 3, 0.4, 0.0, 0.3, 0.4, 0.0, 0.75;  
 110, 3, 0.0, 0.0, 0.75, 3.0, 4.0, 0.75;  
 110, 1, 1.0, 0.0, 0.75, 1.1, 4.0, 0.75;  
 110, 1, 0.0, 0.0, 0.85, 1.0, 4.0, 0.85;  
 0, 1.6, 0.0, 4.375, 12.0, 4.875, 12.0, 4.9375, 12.0, 5.0625, 12.0,  
 5.125, 12.0, 5.625, 12.0;  
 110, 0, 0.0, 0.0, 0.0, 0.4, 0.0, 0.0;  
 110, 3, 0.0, 0.0, 0.3, 0.4, 0.0, 0.0;  
 0;  
 100, 0, 0.2, 0.2, 0.2, 2.25, 2.0, 2.25, 2.0;  
 100, 0.75, 2.0, 2.0, 2.25, 2.0, 2.25, 2.0;

0;  
 110,2.25,2.0,0.0,2.25,2.0,0.75;  
 110,4.75,3.75,0.0,4.75,3.0,0.0;  
 110,5.25,3.75,0.0,5.25,3.0,0.0;  
 110,13.75,3.75,0.0,13.75,3.0,0.0;  
 110,14.25,3.75,0.0,14.25,3.0,0.0;  
 106,1.6,0.0,5.0,4.0,5.0,3.5,5.0,3.4375,5.0,3.3125,5.0,3.25,  
 5.0,2.75;  
 106,1.6,0.0,14.0,4.0,14.0,3.5,14.0,3.4375,14.0,3.3125,14.0,  
 3.25,14.0,2.75;  
 110,0.0,0.0,3.5,1.0,0.0,3.5;  
 110,0.0,0.0,3.5,0.0,4.0,3.5;  
 110,1.0,0.0,3.5,1.0,4.0,3.5;  
 0,3.0,65,79,107;  
 110,1.0,1.0,3.2,1.0,3.0,3.2;  
 0;  
 0;  
 100,1.0,3.0,3.0,3.0,2.8,3.0,3.2;  
 0;  
 110,1.0,1.0,2.8,1.0,3.0,2.8;  
 0;  
 100,1.0,1.0,3.0,1.0,3.2,1.0,2.8;  
 110,0.75,1.0,2.8,0.75,3.0,2.8;  
 100,0.75,1.0,3.0,1.0,3.2,1.0,2.8;  
 110,0.75,1.0,3.2,0.75,3.0,3.2;  
 100,0.75,3.0,3.0,3.0,2.8,3.0,3.2;  
 0;  
 110,1.0,1.0,2.8,0.75,1.0,2.8;  
 110,1.0,3.0,2.8,0.75,3.0,2.8;  
 110,1.0,1.0,3.2,0.75,1.0,3.2;  
 110,1.0,3.0,3.2,0.75,3.0,3.2;  
 0;  
 0;  
 110,3.75,10.8,0.0,4.0,10.8,0.0;  
 110,3.75,13.2,0.0,4.0,13.2,0.0;  
 110,3.75,5.2,0.0,3.75,4.8,0.0;  
 110,3.75,4.8,0.0,4.0,4.8,0.0;  
 110,3.75,5.2,0.0,4.0,5.2,0.0;  
 112,3.1,3.2,0.0,1.0,2.0,3.0,0.500001,-1.07288E-06,3.57628E-07,  
 5.0,0.65,-7.15256E-07,-0.149999,0.0,0.0,0.0,3.5,0.5,0.0,0,  
 -1.19209E-07,5.5,0.200001,-0.449999,0.149998,0.0,0.0,0.0,0.0,0,  
 4.0,0.5,-7.15256E-07,-7.15256E-07,5.4,-0.250002,-7.15256E-06,  
 0.899991,0.0,0.0,0.0,0.0;  
 110,1.0,1.0,2.8,1.0,1.0,2.2,0.1,339;  
 0,1.0,15.0,05,0.12,0.2,0.13,5,2.0;  
 0,1.0,15.0,05,0.16,0.2,0.14,5,2.0;  
 0,1.3,0.0,12.0,3.0,12.0,2.9,12.0,1.9;  
 0,1.3,0.0,16.0,3.0,16.0,2.9,16.0,1.9;  
 0.229,231,233,235,237;  
 0,1.5,0.8,0.2,1.1,5708,0.0,0.0,4.1,1.9,0.0,5H3.000;  
 0,1.0,15.0,05,0.3,0.2,0.4,0.2,0;  
 0,1.0,15.0,05,0.6,0.2,0.5,0.2,0;  
 0,1.3,0.0,3.0,3.0,3.0,2.9,3.0,1.9;  
 0,1.3,0.0,6.0,3.0,6.0,2.9,6.0,1.9;  
 0,241,243,245,247,249;

155P	84	110	line connecting circular arcs of hole
157P	85	110	dashed line 9
159P	86	110	dashed line 10
161P	87	110	dashed line 11
163P	88	110	dashed line 12
165P	89	110	centerline 3 - thru points
167P	90	106 F 20	centerline 4 - thru points
169P	91	106 F 20	
171P	92	110	line 17
173P	93	110	line 18
175P	94	110	line 19
177P	95	110	
179P	96	110	line 1 for slot
181P	97	110	
183P	98	110	
185P	99	110	
187P	100	100	circular arc 2 for slot
189P	101	110	line 3 for slot
191P	102	110	
193P	103	100	circular arc 4 for slot
195P	104	110	line 5 for slot
197P	105	100	circular arc 6 for slot
199P	106	110	line 7 for slot
201P	107	100	circular arc 8 for slot
203P	108	110	
205P	109	110	line 9 for slot
207P	110	110	line 10 for slot
209P	111	110	line 11 for slot
211P	112	110	line 12 for slot
213P	113	110	
215P	114	110	dashed line 1
217P	115	110	dashed line 2
219P	116	110	dashed line 3
221P	117	110	dashed line 4
223P	118	110	dashed line 5
225P	119	110	spline
227P	120	110	
229P	121	110	
231P	122	112	
233P	123	110	line for strip of metalization
235P	124	110	
237P	125	110	
239P	126	110	
241P	127	110	
243P	128	110	
245P	129	110	
247P	130	110	
249P	131	110	
251P	132	110	
	133	110	
	134	110	
	135	110	
	136	110	
	137	110	
	138	110	

212,1,5,0,8,0,2,1,1,5708,0,0,0,0,3,1,7,4,0,0,5H1,0.00;	212 F 0	text for dimension 1.000
214,1,0,15,0,05,0,0,3,0,7,5,2,8,7,5;	214 F 2	left leader for dimension 1.000
214,1,0,15,0,05,0,0,4,0,7,5,4,2,7,5;	214 F 2	right leader for dimension 1.000
106,1,3,0,0,3,0,6,5,3,0,6,6,3,0,7,6;	106 F 40	left witness line for dimension 1.000
106,1,3,0,0,4,0,6,5,4,0,6,6,4,0,7,6;	106 F 40	right witness line for dimension 1.000
216,253,255,257,259,261;	216	linear dimension 1.000
212,1,6,0,96,0,2,1,1,5708,0,0,0,0,5,6,4,9,0,0,6HR,1.00;	212 F 0	text for dimension R .100
214,2,0,15,0,05,0,0,4,0,3837,3,77125,5,0,5,5,5,0;	214 F 2	leader for dimension R .100
222,265,267,4,1,3,85;	222	radius dimension
212,1,5,0,8,0,2,1,1,5708,0,0,0,0,3,6,8,9,0,0,5H2,0.00;	212 F 0	text for dimension 2.000
214,1,0,15,0,05,0,0,3,0,9,0,3,5,9,0;	214 F 2	left leader for dimension 2.000
214,1,0,15,0,05,0,0,5,0,9,0,4,5,9,0;	214 F 2	right leader for dimension 2.000
106,1,3,0,0,3,0,10,0,3,0,9,9,3,0,8,9;	106 F 40	left witness line for dimension 2.000
106,1,3,0,0,5,0,11,375,5,0,11,275,5,0,8,9;	106 F 40	right witness line for dimension 2.000
216,271,273,275,277,279;	216	linear dimension 2.000
212,2,1,0,16,0,2,1001,1,5708,0,0,0,0,7,1,10,4,0,0,1Hn,4,	212 F 0	text for dimension m.500
0,64,0,2,1,1,5708,0,0,0,0,7,42,10,4,0,0,4H,500;	212 F 0	text for dimension m.500
214,2,0,15,0,05,0,0,5,17678,11,8232,6,5,10,5,7,0,10,5;	214 F 2	leader for dimension m.500
206,283,285,0,5,0,12,0;	206	diameter dimension
212,1,4,0,64,0,2,1,1,5708,0,0,0,0,6,6,8,3,265,0,0,4H,750;	212 F 0	text for dimension .750
214,1,0,15,0,05,0,0,7,0,3,0,7,0,2,8;	214 F 2	bottom leader for dimension .750
214,1,0,15,0,05,0,0,7,0,3,75,7,0,3,95;	214 F 2	top leader for dimension .750
106,1,3,0,0,6,0,3,0,6,1,3,0,7,1,3,0;	106 F 40	bottom witness line for dimension .750
106,1,3,0,0,6,0,3,75,6,1,3,75,7,1,3,75;	106 F 40	top witness line for dimension .750
216,289,291,293,295,297;	216	linear dimension .750
106,1,16,0,0,3,0,6,21716,3,28284,6,5,3,0,5,93431,3,56569,6,5,	106 F 31	crosshatching
3,0,5,65147,3,84853,6,5,3,0,5,36863,3,75,6,11863,3,83137,6,2,		
4,0,6,36863,3,0,5,08579,3,75,5,83579,3,71121,5,51415,3,99706,		
5,8,3,91937,5,43947,4,0,5,5201;		
402,2,5,65,79,307,115,127,185,193;		
0;		
408,37,0,0,0,0,-1,0,1,0;		
406,1,7HLBRACKET;		
406,2,1,4HINCH;		
406,2,22,0,17,0;		
110,3,75,10,8,0,0,3,75,13,2,0,0;		
110,3,75,11,0,0,0,4,0,11,0,0,0;		
110,3,75,13,0,0,0,4,0,13,0,0,0;		
0,4,107,3,0,3,0,93,3,0,10,0,79,12,0,3,0,65,12,0,10,0,32,129,		
227,143,239,251,263,159,161,163,165,167,169,269,281,287,299,217,		
219,301,221,223,225,317,319,315,0,3,309,311,313;		
402,12,179,185,189,193,195,197,199,201,205,207,209,211;		
314,60,0,0,0,40,0,7HAGENTA;		
402,2,3,65,1,0,6,0,93,1,0,3,0,157,151,153;		
406,2,1,4;		
406,2,1,14HMODEL ENTITIES;		
406,2,2,18HMODEL ENTITIES;		
406,2,3,15HOTHER DETAILING;		
406,2,4,18HSUBFIGURE ENTITIES;		
406,5,0,0,1,1,0,2,0,0;		
304,2,0,1,0,1,1H2;		
402,3,10,65,79,107,179,189,195,197,199,201,205,207,		
209,211;		
110,1,0,1,0,0,0,21,0,1,0,0,0;		
110,21,0,1,0,0,0,21,0,16,0,0,0;		
139	212 F 0	text for dimension 1.000
253P	214 F 2	left leader for dimension 1.000
255P	214 F 2	right leader for dimension 1.000
140	106 F 40	left witness line for dimension 1.000
257P	106 F 40	right witness line for dimension 1.000
142	216	linear dimension 1.000
259P	212 F 0	text for dimension R .100
261P	214 F 2	leader for dimension R .100
143	222	radius dimension
263P	212 F 0	text for dimension 2.000
144	214 F 2	left leader for dimension 2.000
265P	214 F 2	right leader for dimension 2.000
267P	106 F 40	left witness line for dimension 2.000
269P	106 F 40	right witness line for dimension 2.000
271P	216	linear dimension 2.000
273P	212 F 0	text for dimension m.500
275P	214 F 2	leader for dimension m.500
277P	206	diameter dimension
279P	212 F 0	text for dimension .750
281P	214 F 2	bottom leader for dimension .750
283P	214 F 2	top leader for dimension .750
285P	106 F 40	bottom witness line for dimension .750
287P	106 F 40	top witness line for dimension .750
289P	216	linear dimension .750
291P	106 F 31	crosshatching
293P		
295P		
297P		
299P		
301P		
303P		
305P		
307P		
309P		
311P		
313P		
315P		
317P		
319P		
321P		
323P		
325P		
327P		
329P		
331P		
333P		
335P		
337P		
339P		
341P		
343P		
345P		
347P		
402 F 3	402 F 3	views visible
408 F 15	408 F 15	subfigure instance
406 F 17	406 F 17	drawing name
406 F 16	406 F 17	drawing units
110	406 F 16	drawing size
110	110	dashed line 6
110	110	dashed line 7
110	110	dashed line 8
402 F 15	402 F 15	ordered group without back pointers
314	314	color definition
402 F 4	402 F 4	views visible, color, line weight
406 F 1	406 F 1	definition levels
406 F 3	406 F 3	level function 1
406 F 3	406 F 3	level function 2
406 F 3	406 F 3	level function 3
406 F 3	406 F 3	level function 4
406 F 5	406 F 5	line widening
304 F 2	304 F 2	line font - repeating visible/blank
402 F 3	402 F 3	views visible
110	110	border line 1
110	110	border line 2

110,21,0,16,0,0,0,1,0,16,0,0,0;	349P	194	110	border line 3
110,1,0,16,0,0,0,1,0,1,0,0,0;	351P	195	110	border line 4
110,19,0,1,0,0,0,19,0,3,0,0,0;	353P	196	110	title block line 1
110,19,0,3,0,0,0,21,0,3,0,0,0;	355P	197	110	title block line 2
212,5,17,1,746,0,09,1,1,5708,0,0,0,0,19,127,2,25,0,0,17HCALS TES	357P	198	212 F 0	text for title block
T NETWORK,11,1,098,0,09,1,1,5708,0,0,0,0,19,451,2,115,0,0,11HMIL	357P	199		
-D-28000,8,0,738,0,09,1,1,5708,0,0,0,0,19,631,1,98,0,0,8NCLASS I	357P	200		
1,17,1,755,0,09,1,1,5708,0,0,0,0,19,1225,1,845,0,0,17HREFERENCE	357P	201		
DRAWING,9,0,936,0,09,1,1,5708,0,0,0,0,19,532,1,71,0,0,9HL-BRACKE	357P	202		
T;	357P	203		
110,4,0,3,85,0,0,4,0,5,8,0,0,0;	359P	204	110	detail line 1
110,4,0,6,2,0,0,4,0,6,5,0,0,0;	361P	205	110	detail line 2
404,4,107,3,0,3,0,93,3,0,10,0,79,12,0,3,0,65,12,0,10,0,31,129,	363P	206	404	drawing
227,263,159,161,163,165,167,169,269,281,287,299,217,	363P	207		
219,301,221,223,225,317,319,315,345,347,349,351,353,355,357,	363P	208		
359,361,0,3,309,311,313;	363P	209		
110,0,0,0,0,0,0,0,1,0,0,0,0,0;	365P	210	110	dashed line for subfigure
308,0,4HDASH,1,365;	367P	211	308	subfigure definition of dashed line
304,0,367,0,2,1,0;	369P	212	304 F 1	line font - repeating dashed subfigure
S 39G 3D 370P 212	T	1		

Attachment K

N-entity Entity Listing and Count



## N-ENTITY

NAME	TYP	FORM	COUNT
NULL ENTITY	0	0	196
CIRCULAR ARC	100	0	19
COMPOSITE CURVE	102	0	2
CONIC ARC	104	0	1
ELLIPSE	104	1	1
HYPERBOLA	104	2	1
PARABOLA	104	3	1
COORDINATE PAIRS	106	11	3
COORDINATE TRIPLES	106	12	1
CENTERLINE	106	20	1
CENTERLINE	106	21	1
SECTION (FORM 31)	106	31	1
SECTION (FORM 32)	106	32	1
SECTION (FORM 33)	106	33	1
SECTION (FORM 34)	106	34	1
SECTION (FORM 35)	106	35	1
SECTION (FORM 36)	106	36	1
SECTION (FORM 37)	106	37	1
SECTION (FORM 38)	106	38	1
WITNESS LINE	106	40	6
SIMPLE CLOSED AREA	106	63	4
PLANE (CLIPPING BOX)	108	0	8
PLANE (POSITIV)	108	1	1
LINE	110	0	74
PARAMETRIC SPLINE	112	0	13
PARAMETRIC SPLINE SURFACE	114	0	3
POINT	116	0	12
RULED SURFACE	118	0	3
RULED SURFACE (PARAMETRIC)	118	1	1
SURFACE OF REVOLUTION	120	0	1
TABULATED CYLINDER	122	0	1
TRANSFORMATION MATRIX	124	0	8
TRANSFORMATION MATRIX	124	1	1
RATIONAL B-SPLINE	126	0	7
RATIONAL B-SPLINE SURFACE	128	0	1
RAT B-SPLINE SURF (CIRC CYL)	128	2	1
RAT B-SPLINE SURF (CONE)	128	3	1
RAT B-SPLINE SURF (SPHERE)	128	4	1
RAT B-SPLINE SURF (TORUS)	128	5	1
RAT B-SPLINE SURF (QUADRIC)	128	9	1
OFFSET CURVE	130	0	1
OFFSET SURFACE	140	0	1
CURVE ON A PARAM. SURFACE	142	0	2
TRIMMED SURFACE	144	0	1
ANGULAR DIMENSION	202	0	1
DIAMETER DIMENSION	206	0	1
GENERAL LABEL	210	0	1
GENERAL NOTE	212	0	96
GENERAL NOTE (DUAL STACKS)	212	1	1
GENERAL NOTE (IMBEDDED FONT)	212	2	1
GENERAL NOTE (SUPERSCRIP)	212	3	1
GENERAL NOTE (SUBSCRIPT)	212	4	1

## N-ENTITY CONT.

NAME	TYP	FORM	COUNT
GENERAL NOTE (SUPER/SUBSCR.)	212	5	1
GENERAL NOTE (STACK;LEFT)	212	6	1
GENERAL NOTE (STACK;CENTER)	212	7	1
GENERAL NOTE (STACK;RIGHT)	212	8	1
GENERAL NOTE (SIMPLE FRACT.)	212	100	1
GENERAL NOTE (DUAL FRACTION)	212	101	1
GENERAL NOTE (IMBED.;FRACT.)	212	102	1
GENERAL NOTE (SUP/SUB;FRACT)	212	105	1
LEADER (WEDGE)	214	1	1
LEADER (TRIANGLE)	214	2	12
LEADER (FILLED TRIANGLE)	214	3	1
LEADER (NO ARROWHEAD)	214	4	4
LEADER (CIRCLE)	214	5	1
LEADER (FILLED CIRCLE)	214	6	1
LEADER (RECTANGLE)	214	7	1
LEADER (FILLED RECTANGLE)	214	8	1
LEADER (SLASH)	214	9	1
LEADER (INTEGRAL SIGN)	214	10	1
LEADER (OPEN TRIANLE)	214	11	1
LINEAR DIMENSION	216	0	2
ORDINATE DIMENSION	218	0	2
POINT DIMENSION	220	0	1
RADIUS DIMENSION (SINGLE)	222	0	1
GENERAL SYMBOL	228	0	1
GENERAL SYMBOL (DATUM FEA.)	228	1	1
GENERAL SYMBOL (DATUM TAR.)	228	2	1
GENERAL SYMBOL (FEA.CONTR.)	228	3	1
SECTIONED AREA	230	0	1
SUBFIGURE DEFINITION	308	0	1
DRAWING	404	0	1
NAME	406	15	3
DRAWING SIZE	406	16	1
DRAWING UNITS	406	17	1
SINGULAR SUBFIGURE INSTANCE	408	0	2
VIEW	410	0	2
T O T A L			547

Attachment L

L-bracket Entity Listing and Count

## L-BRACKET

NAME	TYP	FORM	COUNT
NULL ENTITY	0	0	35
CIRCULAR ARC	100	0	12
CENTERLINE	106	20	2
CENTERLINE	106	21	1
SECTION (FORM 31)	106	31	1
WITNESS LINE	106	40	6
PLANE (CLIPPING BOX)	108	0	16
LINE	110	0	58
PARAMETRIC SPLINE	112	0	1
TRANSFORMATION MATRIX	124	0	6
DIAMETER DIMENSION	206	0	1
GENERAL NOTE	212	0	6
LEADER (TRIANGLE)	214	2	8
LINEAR DIMENSION	216	0	3
RADIUS DIMENSION (SINGLE)	222	0	1
LINE FONT DEFINITION	304	1	1
LINE FONT DEFINITION	304	2	1
SUBFIGURE DEFINITION	308	0	2
COLOUR DEFINITION	314	0	1
VIEWS VISIBLE	402	3	2
VIEWS VISIBLE, COLOUR	402	4	1
ORDERED GROUP WITHOUT BACKP.	402	15	1
DRAWING	404	0	1
DEFINITION LEVEL	406	1	1
LEVEL FUNCTION	406	3	4
LINE WIDENING	406	5	1
NAME	406	15	5
DRAWING SIZE	406	16	1
DRAWING UNITS	406	17	1
SINGULAR SUBFIGURE INSTANCE	408	0	1
VIEW	410	0	4
T O T A L			185

Attachment M

IGES Test Platform: Hardware/Software Descriptions

## IGES Test Platform: Hardware/Software Descriptions

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### 1.0 Introduction

The CALS Test Network IGES Test Platform located at the Lawrence Livermore National Laboratory is comprehensive. The CTN IGES analyst has access to mainframe and personal computer CAD systems, IGES analyzers, MIL-STD-1840A analyzers, and more. The following paragraphs discuss the hardware and software utilized on the CTN IGES Test Platform.

### 2.0 Hardware

#### 2.1 MicroVAX Platform

The primary test hardware, running the analyzation software, is a DEC Microvax II computer. It operates VMS and is equipped with 8 MB of RAM memory, a 159 MB hard drive, and a VT320 console terminal. A Tektronix Model 4207 graphics terminal allows graphic display. A Purtek magnetic tape drive allows the transfer of files to and from 9-track tapes at 800, 1600, 3200, or 6250 bits per inch densities.

#### 2.2 Personal Computer Platform

The personal computer platform, for running editors and PC-based CAD systems, is a COMPAQ Deskpro 386 computer. It operates DOS at 16 MHz speed and is equipped with 4 MB of RAM, a 40 MB hard disk, and a 80387-16 MHz math co-processor. The terminal is a Wyse 700, 15 inch monochrome monitor with a 1200 x 800 resolution graphics card. The digitizer is a 12 x 12 inch IS/ONE tablet manufactured by KURTA. This computer utilizes a NEC Pinwriter P6 dot matrix printer and a Hewlett-Packard Laserjet Plus.

#### 2.3 Plotter

Both the MicroVAX II and the COMPAQ Deskpro 386 drive a Houston Instruments Model #DMP62 Plotter which is capable of plotting A-through E-sized drawings.

#### 2.4 Mainframe CAD System

The CTN IGES Testing Project has access to a Computervision CGOS 200 mainframe computer. It is equipped with 9 color Instaview work platforms with 1 MB of RAM allotted to each, 3 alpha-numeric terminals, and 9 300 MB disk drives for data storage.

### 3.0 Software

#### 3.1 MIL-STD-1840A Tape Reading/Analyzation and Writing

## Tools

The CTN has developed software to read/analyze and write an 1840A standard 9-track tape. Both pieces of software run on the Microvax II computer of the CTN IGES Test Platform. The 1840A tape reading/analyzation tool mounts the tape; copies the files; and analyzes the 1840A tape formats, declaration files, and header fields. The writing tool prompts one to fill in the 1840A declaration and header field information, collects and merges the necessary files, and then copies them to a properly formatted 1840A standard tape. Both software packages are available to all CTN members.

### 3.2 Parser/Verify and View

The MicroVAX II supports the IGES Data Analysis Company Parser/Verify and View Software. The Parser/Verify programs read IGES formatted data files and generate reports on the IGES files' levels of compliance to the current standard. The programs themselves are easy to run and the output is useful and understandable, although most, but not all, of IGES errors are flagged. The View program allows users to directly view the graphic representation of an IGES file. Users can view an IGES file on the graphics terminal and/or reproduce it on a plotter. Here again, most, but not all, of the IGES entities are displayed for viewing.

### 3.3 IGES Model Testing System

The MicroVAX II also supports the IGES Model Testing Software (IMTES) Version 4.1 by R. Glatz. This software contains a very thorough IGES compliance analyzer and one of the few that checks for compliance to the MIL-D-28000 subsets. Also encompassed in this software is a program which compares a test pre-processed IGES file to a reference IGES file and reports differences in the resulting models. To debug any problems in an IGES file, the software package also provides a debugger.

### 3.4 PC CAD Programs

The personal computer runs CAD software. The two CAD packages currently operating on the system are AutoCAD Revision 10 by Autodesk and CADKEY Revision 3.02 by Micro Control Systems, Inc. These are used for experimental CAD designing and IGES processing.

### 3.5 Editors

The personal computer runs IGES EDITOR, a public domain program written by the National Institute for Standards and Technology to help edit IGES files and resequence start sections. Large editing of IGES files (like that undertaken to produce the CTN Reference Files) is accomplished using Microsoft Word V. 4.0 on the PC and/or EDT on the MicroVAX II.

### 3.6 Mainframe CAD Program

The mainframe CAD system that the CALS Test Network utilizes operates the Computervision CADD5 4X Revision 5.00-E software package. It allows more powerful/complete modelling and processing of IGES files.

### 4.0 Conclusion

A complete IGES testing platform requires not only reliable hardware and software, but also competent analysts. The CALS Test Network IGES Test Platform at the Lawrence Livermore National Laboratory is doing its best to boast all three.